

Ruble Politics
Evaluating Exchange Rate Management
in 1990s Russia

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1 Introduction

In the ten years between December 1991 and December 2001, the Russian ruble lost 99.4 percent of its value against the dollar. In the two months of August and September 1998 alone, the currency depreciated by more than 60 percent. If one of the basic responsibilities of government is to provide stable money, this looks like a colossal failure.

It has seemed so to many observers. President Yeltsin himself referred to the August 1998 crisis as a “terrible financial disaster”.¹ According to one liberal economist, ordinary Russians viewed it as “the gravest cataclysm to hit their country since the end of the Soviet era.”² In his opinion, August 1998 had discredited the words “democracy” and “reform” in popular discourse and set the country back politically by ten years. A group of US congressmen claimed in 2000 that the August events had “led to Russia’s total economic collapse.”³

A country’s exchange rate, as Charles Kindleberger observed, is more than just a number: “It is an emblem of its importance to the world, a sort of international status symbol.”⁴ The stability of a country’s currency is often taken as a summary indicator of the competence and probity of its economic decisionmakers. To many Western observers, as Timothy Colton and Stephen Holmes note in the Introduction, the Russian government in the 1990s appeared “weak” and “dysfunctional”, reminiscent of the predatory regimes of post-colonial Africa. The ruble’s collapse and subsequent gyrations seemed to epitomize this weakness.

¹ Boris Yeltsin, *Midnight Diaries*, 2000, New York: Public Affairs, p.165.

² Andrei Illarionov, “The Roots of the Economic Crisis,” *Journal of Democracy*, 1999, 10, 2, pp.68-82, at pp.68-9.

³ See US House of Representatives, Speaker’s Advisory Group on Russia, *Russia’s Road to Corruption: How the Clinton Administration Exported Government instead of Free Enterprise and Failed the Russian People*, September 2000, Ch.8. It was an odd conclusion given that by that time Russia’s real GDP had far surpassed its level immediately preceding the crisis.

⁴ Quoted in Jonathan Kirshner, “The Inescapable Politics of Money,” in Kirshner, ed., *Monetary Orders: Ambiguous Economics, Ubiquitous Politics*, Ithaca: Cornell University Press, 2003, p.15.

How unusual was Russia's record of currency instability in the 1990s? To what can it be attributed? And what—if anything—does it reveal about perceived failures of Russian governance? In this chapter, I try to answer these questions, examining the economic data on Russia's exchange rate performance and the arguments that have been proposed to explain it. Previous accounts have located responsibility for the ruble's instability at three different levels. Some blame the errors or ignorance of individual policymakers. Others attribute currency volatility to conflicts within the state and the poor articulation of governing institutions. Still others place the main cause not within the state but outside it. They blame powerful interest groups—usually the “oligarchs”, believed by many to have “captured” Russian government in the mid-1990s—for pressuring the authorities to enact exchange rate policies that were not in the public interest.

My analysis suggests several conclusions that diverge from the conventional wisdom. First, I show that the decline and volatility in Russia's currency in the 1990s—although extreme when compared to currency changes in settled, highly developed countries—were not at all unusual for an emerging market economy. Many countries around Russia's level of economic development had similar problems, and some had currencies that were less stable than Russia's. One should probably not, therefore, seek explanations for the ruble's volatility in factors unique to Russia.

Second, although individual errors, institutional incoherence, and interest group lobbying helped shape the context in which exchange rate policy was made, they appear to have played a smaller role in determining the outcomes than is usually thought. The macroeconomic challenges that Russia faced during this period were so severe and its resources to address them so limited that even had the country's central bank been perfectly insulated from politics and run by a student of Milton Friedman, Russia would probably have experienced similar turbulence. Russia's first post-communist government inherited extreme price distortions, a state budget ballooning out of control, a major “overhang” of rubles, no government bond market, and almost

no currency or gold reserves. Throughout the decade, international oil prices and investor sentiment swung sharply. In such conditions, major fluctuations of both the nominal and real exchange rates were simply unavoidable.

Third, I will argue that, in any case, economic ignorance, institutional incoherence, and oligarch capture generally do a poor job of explaining the pattern of policy choices and exchange rate performance in Russia. If these factors caused the nominal depreciation of 1992-4, it is hard to account for the authorities' great success in stabilizing the nominal rate in 1995-6. This occurred at a time when the most economically literate officials were being edged out by Soviet-era professionals; when conflicts between government and parliament and among state agencies remained intense; and when the oligarchs were approaching the peak of their influence. Do these factors explain the authorities' failure to devalue early and avert the 1998 currency crisis? One can hardly blame economic ignorance for this since leading macroeconomists in the West—as well as the IMF—also thought devaluation could be avoided.⁵ Nor can one blame institutional conflict since all the relevant authorities were united against devaluation. As for oligarch capture, the oligarchs' interests on this were in fact closely aligned with those of the general public, which renders the question which had greater influence somewhat immaterial. Both stood to lose from a devaluation, and hoped to avoid one completely.⁶ Finally, if these three explanatory factors determined exchange rate policy, one would expect policy to change when the three factors change. Since 1998, the influence of the oligarchs has been perceived as in decline. Previous institutional and political conflicts have been restrained by the president's popularity and electoral mandate. But the monetary authorities have stuck to an exchange exchange rate policy very

⁵ As late as August 13, 1998, Rudiger Dornbusch of MIT, perhaps the world authority on exchange rate economics, thought the Russian government could limit itself to a debt restructuring and avoid devaluation completely. In a radio interview, he announced that: “Devaluation is out.” (NPR “All Things Considered,” August 13, 1998).

⁶ There were conflicts of interest over how the losses associated with the 1998 crash were distributed among bank owners and depositors, but these had more to do with banking regulation than exchange rate policy per se.

similar to that adopted in 1995-8. The ruble has appreciated in real terms during this period to a level now approaching that of 1998. If this is seen as less threatening than that in 1995-8, this is more because of changed circumstances (high oil prices, large currency reserves) than changed policy.

Overall, the analysis casts doubt on arguments that problems of governance explain why Russia's exchange rate performance was disappointing in the 1990s. Poor performance had more to do with the extreme challenges that decisionmakers faced in the 1990s than with the ignorance, disorganization, or cooptation of such officials. Of course, this does not mean that failures of governance were not important in other spheres—other chapters in this volume make strong arguments to the contrary. And it does not guarantee that institutional incoherence, cronyism, or decisionmaker errors will not hamper Russian currency management in the future. But it cautions against attributing disappointing outcomes too readily to failures of political decisionmaking and “weak” institutions without explicitly considering the challenges faced and the feasible alternatives.

2 Russia's troubled ruble

2.1 The facts

The ruble's exchange rate has been determined since the early 1990s primarily at currency auctions on the Moscow Interbank Currency Exchange (MICEX), where banks trade currencies among themselves. The central bank intervenes on this market, selling or buying currency to affect the rate. Although the central bank is legally independent of the government, and determines operational interventions by itself, the basic parameters of exchange rate policy are generally decided in collaboration with the Ministry of Finance. The bank is accountable to the Duma, which can fire its chairman. In practice, presidents have been able on many occasions to persuade central bank chairmen to resign (see below).

Russian exchange rate management since 1992 falls naturally into three periods (see Figures 1 and 2).⁷ The first, from 1992 to around April 1995, coincided with the struggle to prevent hyperinflation. During this period, the exchange rate was allowed to float freely.⁸ Price liberalization in January 1992 prompted a sharp jump in the price level, and subsequent large increases in the money supply fueled very high inflation. The nominal exchange rate fell sharply as the ruble supply expanded. In mid-1994, the central bank began intervening to slow the nominal depreciation. But it quickly ran through its reserves, and on October 11, 1994, which came to be known as “Black Tuesday”, the ruble dropped 30 percent against the dollar in one day, before jumping back. The decline in the nominal exchange rate was not as fast as the rise in prices during this period, and so the real exchange rate appreciated rapidly (see Figure 2).⁹

[Figures 1 and 2 here]

The second period began around April 1995, with the achievement of macroeconomic stabilization and the introduction of a “currency corridor”. From July 1995 to January 1996, the monetary authorities committed themselves to keeping the rate between 4,300 and 4,900 rubles per dollar. In January 1996, the permitted range shifted to 4,550 to 5,150. It was adjusted upward

⁷ This periodization is based on macroeconomic factors, not on politics. Thus, the final period starts after the August 1998 devaluation rather than at the beginning of the Putin administration.

⁸ Adopting a floating exchange rate initially was dictated by two factors. First, the authorities had no idea—and could not have any idea—what a sustainable exchange rate for the ruble would be until the huge relative price changes associated with price liberalization had occurred. Second, they had no currency reserves to speak of that could have been used to defend a particular parity.

⁹ Appreciation of the ruble’s real exchange rate occurs when the purchasing power of the ruble on world markets increases relative to its purchasing power on Russian markets. Imports become cheaper for Russians, and Russian exports more expensive for foreign buyers. The real exchange rate is the nominal exchange rate (in local currency units per dollar) times the ratio of world to local price levels:

$e_{R/S} = e_{R/S} \times P_S / P_R$, where $e_{R/S}$ is the real exchange rate, $e_{R/S}$ is the nominal exchange rate in rubles per dollar, P_S is the world price level (in dollars), and P_R is the local price level (in rubles). The estimate shown in Figure 2 is simply deflated by the CPI, with no weighting of commodities by their trade volumes or allowance for dollar inflation. However, the pattern would look similar however the rate is calculated.

again in July 1996, and again in December 1996. From July 1996, the government guaranteed in addition to keep the value within a narrow crawling band that would not move more than 1.5 percent in a day. The real value of the ruble reached a plateau around the beginning of 1996.¹⁰

The third phase began with the crisis of August 1998, during which the authorities let the ruble depreciate sharply. Its value fell from 6.27 R/\$ at the end of July to 10.36 R/\$ at the end of August and 16.05 R/\$ at the end of September.¹¹ After that, the currency floated without any pre-announced limits, although the central bank continued to intervene to prevent large changes. From early 1999 to early 2003, the ruble depreciated gradually, without major turbulence, while the real exchange rate appreciated moderately. As of late 2003, the real rate was about 75 percent above its post-crisis low.

2.2 Common criticisms

The exchange rate fluctuations visible in Figures 1 and 2 have prompted various criticisms of the authorities' management. First, the nominal exchange rate has been extremely unstable. The ruble's dollar value dropped more than 99 percent between 1991 and 2001, mostly during the first phase (January 1991 to April 1995) and the months immediately following August 1998.

Instability of a currency's nominal value makes calculating real future profits difficult, discourages long-term investments, and depresses growth. Changes in the nominal exchange rate have also been quite unpredictable, rendering financial planning even more complicated and investment riskier. A regular, steady decline in a currency's value can be factored into calculations; volatile fluctuations cannot. The dramatic collapse of August 1998 shocked investors and temporarily shook their confidence in the Russian market.

¹⁰ OECD, *Economic Surveys: Russian Federation*, 1997, Paris: OECD.

¹¹ MICEX end of month rate, Russian Economic Trends database.

Second, some have argued that the authorities let the real exchange rate appreciate too much in the early 1990s. A higher real exchange rate reduces the domestic price of imports and benefits consumers. But it also reduces demand for exports (by increasing dollar export prices) and increases price competition for domestic producers. These effects are often thought to depress growth and lead to recession.¹² An “overvalued” real exchange rate is also thought to provoke speculative crises in which the currency’s value suddenly crashes. Especially when the government runs large fiscal deficits and relies on foreign investors to fund these, real exchange rate overvaluation is considered dangerous. Several Russian economists argued vigorously from early 1997 that the real exchange rate had appreciated to an unsustainable level and that a moderate devaluation was vital to restore competitiveness and avoid a crisis.¹³

Third, the Russian authorities have been criticized for a variety of other policies that increased the likelihood of crisis or exacerbated its effects. Illarionov accuses the central bank of irresponsibly failing to build up sufficient currency reserves, despite large inflows of dollars in the years preceding 1998. Some also faulted the central bank for poor prudential regulation of the commercial banks that were engaged in international transactions. Months before the 1998 crisis, the bank stopped requiring domestic banks selling dollar forward contracts to foreign investors to hedge their risk with it. The authorities also removed capital controls at a particularly dangerous time. Throughout 1997, the central bank was relaxing conditions for foreign investors to repatriate profits from the Treasury bill market, making a sudden exodus easier. Just weeks before the ruble floated, the bank attempted to swap outstanding ruble-denominated treasury bills (GKO’s) for longer-duration hard currency bonds. These obligations were that much harder to

¹² See, for example, Rudiger Dornbusch, Ilan Goldfajn and Rodrigo O. Valdés, “Currency Crises and Collapses,” *Brookings Papers on Economic Activity*, 1995, 2, pp.219-93.

¹³ For instance, Andrei Illarionov and Vladimir Popov.

finance after the ruble's value crashed. Many observers also blamed the 1998 crisis on the government's "fiscal irresponsibility" in continuing to run large deficits.¹⁴

2.3 Comparative context

Before evaluating the individual criticisms, some comparative context is useful. Was nominal exchange rate depreciation in Russia in the 1990s unusually large compared to exchange rate movements in other postcommunist and developing countries? Did other countries experience crises comparable to August 1998? Was the real appreciation of the ruble unusual?

The total drop in Russia's exchange rate does appear unusually large, although by no means unprecedented. The IMF provides data on exchange rates for 145 countries during the period from December 1991 to December 2001.¹⁵ Five countries—Angola, Moldova, Brazil, Suriname, and Turkey—had currencies that depreciated faster than the ruble during this period. Another six countries—Armenia, Ukraine, Turkmenistan, Tajikistan, Zaire, and Belarus—also performed worse than Russia, suffering a larger drop in an even shorter period (1992-2001, 1993-2001, or 1992-200; data were not available for these countries for the full decade). Some other countries for which the IMF did not publish complete data—such as Macedonia and Croatia—had depreciations equally large (calculated with supplementary information from their central banks or the EBRD.) In the 1980s, currency depreciations of this magnitude were more common. Depreciations even larger than Russia's occurred during that decade in Peru, Argentina, Bolivia, Brazil, Israel, Nicaragua, Uganda, Vietnam, Lebanon, Zaire, and even Poland, one of the success stories of macroeconomic stabilization in the 1990s. Thus, the depreciation of the ruble was an

¹⁴ See Illarionov (1999, p.77): "It was not only necessary but possible to balance the Russian federal budget through further reductions in non-interest expenditures. The authorities, however, chose instead to pursue the less responsible (but more politically palatable) policy of raising domestic and international debt." Central bank officials also tended to emphasize irresponsible fiscal policy to explain the crisis—a convenient position since the bank had no role in fiscal management. According to Sergei Alexashenko: "In our view, undoubtedly, the roots of the crisis lie mainly in the Chernomyrdin government's weakness and inconsistency in strengthening budget revenue and implementing structural adjustments" (quoted in Illarionov 1999, pp.70-1).

¹⁵ IMF *International Financial Statistics*, April 2002.

extreme event, but far from unique. Table 1 shows the total depreciation in Russia, compared to that in the eight countries with per capita income right above Russia's in this period and the eight with income right below Russia's.¹⁶

Table 1: Exchange rate indicators, middle income countries with PPP GDP per capita close to Russia's

	Total drop in value of currency Dec 1991 to Dec 2001 (%)	Unpredictability of exchange rate^a Jan 1992 to Dec 2001
Belarus	100.00 ^b	1.01
Brazil	99.98	0.15
Croatia	99.76 ^c	n.a.
Macedonia	99.71 ^c	n.a.
Russia	99.44	0.34
Bulgaria	99.02	0.30
Venezuela	91.93	0.11
Lithuania	80.55	0.11
Namibia	77.38	0.09
Poland	72.51	0.05
Botswana	70.32	0.05
Colombia	69.28	0.13
Mexico	66.41	0.12
Gabon	65.20	0.08
Trinidad and Tobago	32.43	0.06
Malaysia	28.32	0.09
Latvia	21.63	0.07

Memo: Table contains data for the 8 countries with GDP per capita right above Russia's and the 8 with GDP per capita right below (averages for 1991-2001, in PPP terms; data from the UN GDP International Comparisons Project, as reported in World Bank, *World Development Indicators* 2003). In 1980-90, Peru, Argentina, Bolivia, Brazil, Israel, Nicaragua, Uganda, Vietnam, Lebanon, Zaire, and Poland all had depreciations greater than 99.44 percent.

^a Mean of absolute value of residuals from linear regression of country's exchange rate on time trend, normalized by mean exchange rate. ^b January 1992 to Nov 2001. ^c annual average 1991 to annual average 2001.

Sources: IMF *International Financial Statistics*, April 2002, EBRD *Transition Report* 1997, National Bank of the Republic of Macedonia, *Quarterly Bulletin*, 11, 2003.

Still, the size of the total nominal depreciation may not be a good measure of the harm done by exchange rate volatility. If depreciation proceeds at a regular and predictable rate, the damage to trade and investment can be limited. One relatively simple way to measure the volatility of exchange rates is to calculate the size of the residuals from a linear regression of the exchange rate on its time trend. The residuals measure, in a sense, how far wrong one would be if

¹⁶ By per capita income, I mean GDP per capita at purchasing power parity, as estimated by the UN International Comparisons Project, averaged for 1991-2001. The range in these 17 countries was from Venezuela (\$5,606) to Poland (\$7,331). Russia's average for these years was \$6,350.

one tried to predict the exchange rate with a simple linear model. In Table 1, column 2, I show the average (absolute value) residuals from regressions of the monthly exchange rate on the time trend, for Russia and the countries with per capita income right above and below Russia's. The regressions are run for the period January 1992 to December 2001. To normalize, I divide the average residual by the average exchange rate for the country during that period. In this group of countries, Russia's exchange rate was relatively unpredictable—although it was less unpredictable than that of Belarus, and lack of data precluded comparisons with Macedonia and Croatia. Various other emerging market economies—such as Turkey, Ecuador, and Romania—had even more unpredictable exchange rates during the same years.

Russia's 1998 financial crisis was perceived by many observers at the time in apocalyptic terms. However, such crises are not unusual among developing countries. In Russia between July and September 1998, the exchange rate fell by 61 percent. During the decade from January 1992 to December 2001, the IMF's statistics contain 34 cases of two-month currency collapses at least this large, in a total of 20 countries.¹⁷ Among countries undergoing transitions to democracy in the 1980s and 1990s, currency crises were relatively common. Figure 3 shows the path of the nominal exchange rate in several new Latin American democracies, as well as in Poland and Bulgaria. In each case, I plot the annual percentage change in the nominal exchange rate against the number of years since the start of transition.¹⁸ All these countries suffered years of exchange rate volatility, often with more than one upward spike along the way. By far the worst experiences were in Bolivia in 1985, Argentina in 1989, Peru in 1990, and Brazil in 1993. The 12-fold increase in Poland's nominal (zloty/\$) exchange rate in 1989 was more than twice the largest one-year depreciation in Russia's ruble.

¹⁷ These were Afghanistan, Angola, Armenia, Belarus, Bulgaria, Zaire, Indonesia, Iran, Kazakhstan, Liberia, Moldova, Mongolia, Nigeria, Rwanda, Sudan, Suriname, Tajikistan, Turkmenistan, Ukraine, Yemen.

¹⁸ I date the start of transition as 1983 for Argentina, 1985 for Brazil, 1982 for Bolivia, 1980 for Peru, 1985 for Uruguay, 1991 for Russia, 1989 for Poland, 1989 for Bulgaria. These generally correspond to sharp increases in Freedom House's political rights scores.

[Figure 3 Here]

Not only were currency crises quite common in developing—and democratizing—countries that were integrated with world markets, the type of crisis that occurred in Russia in 1998 bears a strong resemblance to other recent cases. In a common scenario, a temporary inflow of capital enables the government to finance relatively large budget deficits. Often, domestic banks act as intermediaries, borrowing dollars on international markets and investing in high interest rate government bonds. A fixed or insufficiently flexible exchange rate, introduced to create credibility in fighting inflation, leads to gradual real exchange rate appreciation, depressing growth and tax revenues. At a certain point, international investors start worrying about a devaluation—in part because of the high real exchange rate, in part because of accumulating public debt and weak revenue performance—and start withdrawing capital. Unless the IMF at this point helps with major support—and sometimes even if it does—fears turn to panic and a mass outflow, forcing the government to devalue. Although no two currency crises are identical, something resembling this occurred in Turkey in 2000-01, Brazil in 1998-9, Argentina in 2001—and Russia in 1998.¹⁹

From the perspective of 2004, the more extreme statements about the consequences of August 1998 seem overblown. In terms of output and low inflation, the country did not lose “ten years”—it lost about one.²⁰ If 1998 witnessed Russia’s “total economic collapse”, the next couple of years saw its total economic revival. While the crisis may have increased discontent with the way democracy was being implemented, it did not discredit the concept. Between 1996 and 1999, the proportion of respondents to one survey who said they were dissatisfied with how democracy

¹⁹ On Turkey’s crisis, see Alexandra Bibbee, “Turkey’s Crisis,” *OECD Observer*, May 3, 2001.

²⁰ By about August 1999, the inflation rate had settled back around 20-30 percent a year. By the end of 1999, real GDP had risen above the level of December 1997.

was developing in Russia rose from 57 to 80 percent. Nevertheless, 64 percent of respondents in 1999-2000 still said they supported the idea of democracy, and 60 percent thought that it would be a “good way for governing Russia”.²¹ As for attitudes towards market reform, by July 2000 the percentage of survey respondents saying market reforms should be continued had increased from 29 percent in July 1998 *before* the crisis to 35 percent.²²

What about the overvaluation of the real exchange rate? Theory provides few clues about what a country’s real exchange rate should be. Real exchange rates in many transition economies appreciated sharply in early years, but probably remained substantially below purchasing power parity, as is common in developing countries.²³ Economists’ opinions differ on whether or not the ruble was substantially “overvalued”—and even over exactly what that would mean.²⁴ Without resolving this question, a few other points are worth noting.

First, it is not entirely clear what role the real exchange rate played in the stagnation of the mid-1990s and growth of 1999-2000. Real appreciation is supposed to depress growth by stifling exports and exacerbating import competition. But throughout the early 1990s, as the real exchange rate was appreciating sharply, Russian exports were increasing and the trade surplus was expanding. Appreciation did not lead—as in some other countries—to a drop in exports and an unsustainable trade deficit.²⁵ Second, some economists believe that the rapid growth in 1999-

²¹ Timothy J. Colton and Michael McFaul, “Are Russians Undemocratic?” 2001, Carnegie Endowment for International Peace, Working Paper No.20.

²² Data from VCIOM, at www.russiavotes.org. 27 percent thought market reforms should be stopped in July 1998, and 24 percent did in July 2000. 44 and 41 percent respectively said they did not know.

²³ For a comparative discussion, see Padma Desai, “Macroeconomic Fragility and Exchange Rate Vulnerability: A Cautionary Record of Transition Economies,” *Journal of Comparative Economics*, 1998, 26, pp.621-41.

²⁴ Popov and Illarionov considered it significantly overvalued by 1997. László Halpern and Charles Wyplosz (“Equilibrium Exchange Rates in Transition Economies,” *IMF Staff Papers*, 1997, 44, 4, pp.430-61) suggested it was only slightly overvalued. As noted earlier, Rudiger Dornbusch thought devaluation could be avoided completely as late as August 13, 1998 (see fn.5).

²⁵ Nevertheless, Dornbusch, Goldfajn and Valdés (1995) argue that in countries introducing reforms that reduce labor demand (through trade liberalization, budget cutting, and restructuring), it is not enough for

2000 was caused by the resurgence of world oil and gas prices more than by the effect of devaluation.²⁶ After the 1998 crisis, the real exchange rate fell only to the level of early 1995. Since that exchange rate had not stimulated growth in 1995, it is not obvious how it would have done so in 1999.

Even if the real exchange rate's relationship to growth in Russia is open to question, rapid appreciation may still have increased investors' anxiety. What goes up does often come down. According to Goldfajn and Valdés, there were no cases between 1960 and 1994 in which real exchange rate appreciations of more than 35 percent were not followed by a devaluation.²⁷ However, in Russia the real exchange rate had peaked by early 1996—before the large inflow of international capital. So if investors were scared away by its overvaluation in 1998, it is odd that they were not also scared away in 1996.²⁸

In short, Russia's unstable and rapidly depreciating currency—and the crisis the authorities drifted into in 1998—reflected failures common to many developing country governments. Russia's experience of exchange rate volatility was not unusual. While the circumstantial evidence suggests that currency overvaluation depressed growth and increased the risk of financial crisis in the mid-1990s, even this cannot be asserted unequivocally. That Russia's exchange rate problems were not unusual does not make it less important to explain their causes.

the real exchange rate not to impede exports; it must fall sufficiently to stimulate domestic industry to absorb the freed labor. This did not occur in Russia in the mid-1990s or in Argentina in the late 1990s.

²⁶ O.V. Dynnikova, "Makroekonomicheskie perspektivy ukrepleniya rublya i valutnaya politika," in Ekonomicheskaya Ekspertnaya Gruppya, *Instrumenty makroekonomicheskoi politiki dlya Rossii*, 2001, Moscow: TEIS, pp.108-32.

²⁷ Ilan Goldfajn and Rodrigo O. Valdés, "The Aftermath of Appreciations," NBER, WP No. 5650, 1996.

²⁸ The country may have faced a greater short-term debt rollover problem in 1998, but budget deficits were lower than in earlier years. The federal government budget deficit was 5.1 percent of GDP in the first half of 1998 (with a primary surplus of 0.3 percent of GDP), compared to a deficit of 6.8 percent in 1997, and 7.8 percent in 1996 (OECD 1997, and OECD, *Economic Surveys: Russian Federation*, 2000, Paris: OECD).

But it suggests these causes may lie in factors common to other developing and democratizing countries, rather than in those unique to Russia.

3 Explaining Russia's performance

3.1 Common arguments

Why was Russia's currency so unstable in the 1990s? Why was the real exchange rate allowed to appreciate so much between 1994 and 1998? Why did the authorities fail to avert the 1998 financial crisis? Previous attempts to answer these questions have generally placed responsibility at one of three levels.

A first type of account locates the blame straightforwardly with individual monetary officials. Russia's currency gyrated and fell, in this view, because of the errors or economic illiteracy of the decisionmakers in the Central Bank and Finance Ministry. The economic bureaucrats who staffed most ministries were certainly new to the task of managing a market economy. Boris Fyodorov, who served as Finance Minister in 1993 and head of the State Tax Service in 1998, blamed the August crisis in part on the "monstrous incompetence" of his colleagues in the central bank and Finance Ministry.²⁹ Critics point to a number of specific "mistakes" of both the government and central bank. Some relate to the particular exchange rate policies pursued in different periods; others concern associated types of "incompetence", such as inadequate prudential regulation of the commercial banks' international operations or fiscal irresponsibility.³⁰

²⁹ Boris Fyodorov, *10 bezumnykh let*, 1999, Moscow: Sovershenno Sekretno, p.210. A. Aganbegyan ("O prichinakh finansovogo krizisa v Rossii," in Institute for the Economy in Transition, *Finansovy krizis: prichiny i posledstvia*, 2000, Moscow: IET) also attributes the crisis to "economic policy mistakes in the period October 1997-September 1998, not only of the government but of all authorities including the Central Bank and State Duma" as well as to "an inadequate, incorrect reaction to the financial crisis in South-East Asia".

³⁰ It might seem mysterious that Russia's economic officials would have known *anything* about the economics of exchange rates in the early 1990s, given their schooling in Marxist economics and previous

A second common argument blames the institutional setup within which these officials operated. Dysfunctional outcomes resulted from the fragmented and incoherent organization of the state. In this view, disagreements and power struggles between different state actors undermined the effectiveness and rationality of policy. These conflicts occurred at several levels. Some attributed poor macroeconomic policy to a chronic standoff between the central bank and the Ministry of Finance.³¹ Other observers pointed to the frequent confrontations between government and parliament. Many blamed the Duma's refusal to authorize most of the government's emergency fiscal package in July 1998 for triggering the crisis that followed.³² In the early 1990s, disagreements between parliament and government over monetary policy and the budget led to large deficits and bursts of cash emission. Timothy Frye has shown that greater executive-legislature polarization correlates in the postcommunist countries with poorer economic performance.³³ In the "institutional division" view, the disorganization of political institutions and the polarized interests of their leaders generated contradictory and volatile exchange rate policies.³⁴

quarantine from the capitalist world economy. But there were oases, even under late communism, where such matters were studied quite seriously. One of these was the Main Currency-Economic Administration of the USSR Central Bank (*Glavnoe valyutno-ekonomicheskoe upravlenie pravlenia Gosbanka SSSR*), where Boris Fyodorov himself got his professional start in the early 1980s. There, Fyodorov reports, he received only lightly censored issues of the *Financial Times* and *The Banker*, as well as dozens of financial journals. He recounts that his "economic views were formed to a considerable extent under the influence of the Bank of England's quarterly bulletin," which he studied in great detail (see Fyodorov, *10 bezumnykh let*).

³¹ For instance, Illarionov blames the 1998 crisis in part on a "financial war waged against the federal government in the summer of 1998 by the CBR's leadership" (Illarionov 1999, p.75).

³² For instance, Anders Aslund, "The Problem of Fiscal Federalism," *Journal of Democracy*, 1999, 10, 2, pp.83-6.

³³ Timothy Frye, "The Perils of Polarization: Economic Performance in the Postcommunist World," *World Politics*, 2002, 54, 3.

³⁴ There is no agreement in the literature on Western countries about the relationship between institutional and political divisions and macroeconomic outcomes. Some authors have found that political or institutional fragmentation impairs macroeconomic performance, while others have found that such divisions restrain overspending. Nouriel Roubini and Jeffrey Sachs ("Government Spending and Budget Deficits in the Industrialized Countries," *Economic Policy*, 1989, 8, 700-32) found that coalition governments in the OECD countries tended to have higher budget deficits than single-party governments.

Third, some observers attribute the ruble's instability and depreciation to "capture" of the state by powerful business groups and their leaders, the so-called "oligarchs". According to Charles Fairbanks: "The [Russian] state is weak because it has privatized away crucial powers to businessmen like the Moscow bankers."³⁵ Belief in the pernicious effects of state capture was widespread both in Russia and the West in the 1990s. Among Russian businessmen surveyed in the summer of 1999, 35 percent thought their business had been significantly harmed by the sale of parliamentary votes to private interests, and 32 percent said the same about the sale of presidential decrees.³⁶ In the "state capture" view, the ruble zigged, zagged, appreciated, and crashed in Russia in the 1990s because the powerful interests that pulled the strings of government stood to benefit from such movements.³⁷

These views have different implications for how to improve macroeconomic management. If state capture caused Russia's exchange rate mismanagement, the solution would

Torsten Persson, Gerard Roland, and Guido Tabellini ("Separation of Powers and Political Accountability," *Quarterly Journal of Economics*, 1997, November, pp.1163-1202) argue that a specific separation of powers between parliament and executive can restrain fiscal excess. Jürgen Von Hagen and Ian Harden ("Budget Processes and Commitment to Fiscal Discipline," 1996, IMF Working Paper WP/96/78, Washington, DC: IMF) argue that a more streamlined, centralized budgetary process leads to lower deficits and inflation. I found evidence that greater vertical division of powers in a decentralized state tends to entrench existing patterns of macroeconomic policy, whether good or bad (Daniel Treisman, "Decentralization and Inflation: Commitment, Collective Action, or Continuity?" *American Political Science Review*, 2000, 94, 4, December, pp.837-57). Clearly, what matters may be not just the *amount* of division but also the *type* of divisions.

³⁵ Charles H. Fairbanks, Jr., "The Feudalization of the State," *Journal of Democracy*, 1999, 10, 2, pp.47-53, at p.47.

³⁶ See Joel S. Hellman, Geraint Jones, and Daniel Kaufmann, "Seize the State, Seize the Day: State Capture, Corruption, and Influence in Transition," 2000, Washington, World Bank Policy Research Working Paper 2444, pp.8-9. The same survey found that 47 percent thought they had been significantly affected by Central Bank mishandling of funds.

³⁷ One rather odd version of this argument is Joseph Stiglitz's claim that the Russian oligarchs engineered the real appreciation of the ruble in the mid-1990s in order to render "their Chanel handbags" more affordable (see Joseph E. Stiglitz, *Globalization and its Discontents*, 2000, New York: Norton). In fact, real exchange rates appreciated in almost all postcommunist countries, with or without powerful oligarchs. The oligarchs had far more to lose from real appreciation (which reduced the competitiveness of their oil exports) than to gain from lower prices in the Moscow luxury stores. Needless to say, since they earned much of their profit in dollars and their wives shopped in New York and Paris, the ruble exchange rate was quite irrelevant to their ability to purchase fashion accessories.

be to expose and constrain such illicit influence, and to insulate policymakers from special interests. If the problem was institutional conflict, then centralizing economic authority and streamlining decisionmaking should help. If the real culprit was ignorance or mistakes, leaders would need to be taught more macroeconomics. (Of course, the three explanations might all be partly correct: Russia might suffer from ignorant policymakers, incoherent institutions, *and* oligarchical capture.) I now explore the extent to which these three sets of factors can explain the perceived failures of exchange rate management in the three phases of policy identified earlier: 1992-95, 1995-98, and 1998-2003.

3.2 1992-1995

In the first three years of Yeltsin's economic reforms, the nominal exchange rate was crashing while the real rate was rapidly appreciating. Both the nominal fall and the real rise have been seen as major policy failures. The former arguably scared away investors. The latter rendered Russian exports less competitive and prepared the way for the 1998 crisis.

One problem with these criticisms is that they are mutually inconsistent. The real appreciation occurred because the nominal rate did not depreciate *fast enough* to match the rise in Russian prices. The only way the central authorities could have resisted—temporarily—the rise in the real exchange rate would have been to throw even more rubles onto the currency market, driving the nominal exchange rate down even faster. This would have had at best a temporary effect, since the additional rubles exchanged for dollars would have driven up domestic prices when spent, eroding the initial effect on the real exchange rate.

The underlying causes of the real appreciation are unclear. As mentioned already, real appreciation occurred in almost all postcommunist countries in the early years of transition. Sometimes, such appreciations reflect anti-inflationary policies of the monetary authorities, who intervene by selling dollars. This cannot be true for Russia in this period, since the authorities started out with almost no dollars to sell. When the central bank did begin intervening

significantly in mid-1994, its efforts were dramatically defeated on “Black Tuesday”.³⁸ Real appreciation might reflect increased demand for—and an increase in the relative price of—non-tradable goods.³⁹ However, there is no evidence of this. In fact, the price index for services rose more slowly than the CPI, while the price indexes for some of the main tradeable commodities such as crude oil rose faster than the CPI. Alternatively, real appreciation might reflect increased productivity in the tradables sector (the Balassa-Samuelson effect), or increased capital inflows.⁴⁰ Neither of these seems very likely in Russia in 1992-5.

Why did the monetary authorities not attempt to hold down this real appreciation by selling more rubles on the currency market? The answer to this seems too obvious to need much emphasis. In 1992, the country had suffered a burst of hyperinflation, and high inflation continued to disrupt economic activity. Thus, the opposite criticism seems more plausible. Why, given this extreme inflation, did the authorities not try harder to slow the nominal depreciation (at the cost of temporarily increasing real appreciation)?

After the initial burst of inflation associated with price liberalization, the proximate cause of this nominal depreciation was the central bank’s large, periodic credit emissions. These went to finance the federal budget, as well as to provide earmarked credits to favored economic sectors.

³⁸ Russia’s net international reserves were about \$540 million as of March 1992, only enough to finance about five days worth of imports at current rates. Net reserves rose and fell during subsequent years, peaking at about \$11 billion in July 1997, before turning highly negative in 1998. It was only during the Putin administration that they increased to a more comfortable level—\$25 billion in December 2001 and \$45 billion in December 2002 (see Russian Economic Trends database.)

³⁹ The real exchange rate, as in the analysis of Rudiger Dornbusch (“Money Devaluations and Non-Traded Goods,” *American Economic Review*, 1973, 63, 1, pp.871-80), can be treated as the ratio of the price of nontradables to the price of tradables.

⁴⁰ For a discussion, see Panagiotis Liargovas, “An Assessment of Real Exchange Rate Movements in the Transition Economies of Central and Eastern Europe,” *Post-Communist Economies*, 1999, 11, 3, pp.299-318.

Thus, explaining the ruble's nominal fall in this period requires explaining the rapid money growth.⁴¹

Economic errors, interest group pressures, and conflicts between institutions may all have played a part. There were some in Russia around this time who argued that large increases in the money supply were not inflationary. However, such views were not dominant. And economic reformers in key positions in the finance ministry and central bank were quite familiar with the quantity theory of money. In fact, the government did cut spending dramatically, reducing the need for deficit financing. And the central bank even under its Soviet-style chairman Viktor Gerashchenko sharply reduced money emission in 1993-4—albeit not as rapidly as critics would have liked.

Interest group pressures certainly contributed to slowing macroeconomic stabilization. The central bank's money creation generated enormous gains for some groups and losses for others. The main beneficiaries were the enterprises, farms, and budget-funded organizations that received government aid or cheap central bank credits. At the same time, commercial banks earned huge profits by converting their depositors' money into dollars and later repaying depositors in depreciated rubles. The main losers were the owners of low-interest-rate bank deposits—the public and enterprises (although some were compensated with budget or central bank aid), who suffered from soaring inflation. Estimates of the net gain for the commercial banks in 1992-3 are on the order of eight percent of GDP.⁴²

⁴¹ The following section draws on Daniel Treisman, "Fighting Inflation in a Transitional Order: Russia's Anomalous Stabilization," *World Politics*, January 1998, and Andrei Shleifer and Daniel Treisman, *Without a Map: Political Tactics and Economic Reform in Russia*, Cambridge: MIT Press, 2000.

⁴² William Easterly and Paulo Vieira da Cunha, "Financing the Storm: Macroeconomic Crisis in Russia," *Economics of Transition*, 1994, 2. My argument is that the commercial banks lobbied hard against government or central bank attempts to tighten the money supply in 1992-4, and—when joined by industrial lobby groups—succeeded in pressuring the authorities to back off. I do not mean to argue—as one reader of my earlier work understood—that the banks had a "grand design" to engineer inflation, just that they helped block several attempts to reduce it.

However, it is hard to view the movement of opposition to tight money in 1992-3 as a real case of “state capture”. Besides the commercial banks clamoring for loose money and the industrial managers and collective farm bosses lobbying for credits, labor unions and rank-and-file workers were also agitating for state aid to pay wages. Acting in concert, these groups constituted a powerful political force that could undermine government attempts to control inflation. But it had more the character of a vast coalition of special interests than a narrow group of state captors.

The argument that institutional divisions undermined exchange rate stability in these years is also subject to some obvious problems. First, as already noted (fn. 31), many economists actually contend that strict divisions between state agencies are *good* for macroeconomic policy. Central bank independence has become a mantra among macroeconomists, but this is just such an institutional division. Similarly, some argue that dividing control over budgetary decisionmaking in a certain way between parliament and government can increase fiscal discipline.⁴³

Second, even if one believes that institutional divisions are bad for macroeconomic performance, it is not clear how great the institutional divisions in Russia—at least those between central bank and government—actually were. A law on the central bank of 1995 sought to make the central bank’s chairperson more independent of politics. But in practice, such chairpersons were far from independent all through the decade. One was unceremoniously forced to resign before his term ended by the speaker of parliament in 1992. A second was forced out by the president in 1994. A third “acting” chairperson was also dismissed by the president in 1995. Yet another was fired by the president in 1998, with the second reinstated.⁴⁴ He too was fired before

⁴³ Persson, Roland, and Tabellini 1997. One might counter that the alleged positive effects of institutional divisions relate to “orderly” divisions, whereas the scrambled chains of authority and bureaucratic fragmentation evident in Russia constitute a kind of “disorderly pluralism” that does not enhance policy credibility. But this just shows the need to focus on how institutions work in practice rather than on their formal structure. In macroeconomic governance, the formal institutions in Russia were not so different from those in many other countries with superior macroeconomic performance. And improvements in performance occurred in Russia without major changes in the formal institutions (see below).

the end of his term by Putin in 2002. Of these five central bankers, not one left office at the end of his or her term. Despite the formal accountability of the central bank to parliament, it was the president who—in effect—dismissed four of the five.

The divisions between the government and parliament were much clearer, and did seem to add to macroeconomic pressures. But if these explain rapid nominal depreciation in 1992-5, they make the success of stabilization from 1995 all the more puzzling. Money creation slowed substantially during that year, along with nominal depreciation. Yet the institutional and political divisions remained as intense as ever. There was no constitutional change at that time in the relationship between president and parliament. The central bank chair in 1995 was a close associate of Gerashchenko (who had been dismissed after “Black Tuesday”), and the government was itself an incoherent collection of mutually opposed sectoral lobbyists, old apparatchiks, and the odd economic liberal. Parliament and government remained generally at loggerheads. Clearly, fragmentation and institutional conflict were compatible with good outcomes as well as bad.

In short, errors and ignorance may have played a part, but probably not a decisive one. Institutional divisions and interest group lobbying were also elements of the story, but neither can explain why stabilization succeeded in 1995 but failed in earlier years. The most convincing explanation for the sinking nominal exchange rate and soaring real rate in the early 1990s would combine purely economic factors (which seemed to require real appreciation) and the competing pressures of *many* economic groups, which led to high—but not unlimited—money emission. This changed in 1995 when the government found a political strategy to overcome resistance to stabilization from key interest groups and their representatives in parliament and the central

⁴⁴ Yeltsin’s own account of the firing of Dubinin in 1998 is revealing: “After August 17 I made the decision to dismiss Dubinin, the chair of the Central Bank. I thought it was absolutely natural that the chief banker of a country should resign following the collapse of the national currency exchange rate. At my request Yumashev invited Dubinin to the Kremlin and asked him to write a letter of resignation.” (Yeltsin 2000, p.175). Yeltsin does not appear to have been aware that under the 1995 central banking law he did not have authority to do this. The “asking” Dubinin to write a letter of resignation finesses the constitutional issue.

bank.⁴⁵ By that time, certain tactically useful tools—in particular a government bond market—had been created. But a major improvement in policy and outcomes occurred without any significant improvement in governance.

3.3 1995-1998

By late 1995, the nominal exchange rate had been stabilized within its corridor, and the real exchange rate had reached a plateau. Three sets of questions might be raised about exchange rate policy in this period. First, why did the authorities not devalue in 1997, as some economists recommended? Second, why did they make a series of decisions that in retrospect seem to have increased the odds of crisis or increased its severity in the event? Third, why did they not reduce budget deficits more in order to lower their dependence on hot international money?

3.3.1 *Why no early devaluation?*

By 1997, certain economists were warning that the ruble was substantially overvalued. The real exchange rate had not risen much since late 1995. However, the prices of oil and many of Russia's other major export commodities had plunged, rendering a high real exchange rate more costly. And, although a little positive growth was recorded in 1997, much of industry remained stagnant. In retrospect, Anatoli Chubais blames himself for not realizing the dangers in late 1997: "In the summer and autumn of 1997, I, working in the government, should have evaluated the situation more strictly and foreseen the risks. The year 1997 was very successful economically—it was the first year of economic growth in Russia—then was the time to correct policy, particularly on the currency."⁴⁶

⁴⁵ See Shleifer and Treisman 2000.

⁴⁶ *Moskovskie Novosti*, 23-29 July, 2002, pp.1-3.

The central bank and government seriously considered a moderate devaluation in November 1997, after weathering a first blow from the Asian financial crisis, at the cost of several billion dollars in central bank reserves. According to Sergei Dubinin:

The real decision to reject a devaluation was taken in the fall of 1997. Then we had a basis for conducting a devaluation quickly following the improvement on the currency market, on the wave of the Asian crisis. But then a decision on principle was taken to try to avoid this, to oppose it with all force. Both the government and CB were committed to this.⁴⁷

Why did they reject this option? Capture by the oligarchs is certainly one possibility. It is clear that by late 1997 most of the large commercial banks had come to fear a devaluation. By then, many had accumulated debt in dollars and had sold forward contracts on the dollar to foreign investors that would be harder to repay after a devaluation. As of December 1995, the banks' foreign liabilities came to \$6.5 billion, and they had a surplus on foreign operations of about \$3.4 billion. By 1997, foreign liabilities had risen to \$17.4 billion, and the surplus had turned into a deficit of some \$5.2 billion.⁴⁸ By January 1998, the central bank had even removed the requirement that commercial banks hedge their dollar forward contracts with it. For many of the banks, a serious devaluation meant bankruptcy. This explains the feverish lobbying of major bankers in the Russian White House the weekend of August 15.

Officials from both the government and central bank were certainly concerned about the health of the country's leading banks if the ruble were to fall. However, the image of "capture" does not quite fit the situation. First, the oligarchs' interest in avoiding devaluation was an interest the government itself had created. It would be truer to say that, in this regard, the oligarchs had been captured by the government. By making it easy for Russian banks to borrow

⁴⁷ Author's interview with Sergei Dubinin, Moscow, 14 December, 1999.

⁴⁸ Figures are from the Central Bank of Russia's website, www.cbr.ru. In addition, commercial banks may have had some \$6 billion worth of liabilities for forward contracts, that were kept off balance sheet (OECD 2000, p.39).

in dollars and invest in fixed-rate government bonds, the government had given them an interest in low inflation and a stable ruble. Such tactics worked precisely by increasing the banks' exposure to currency risk. At the same time, by involving the main banks in privatization on highly lucrative terms, the government had created hostages to stable money. Most of the oligarchs hoped to resell their stakes to foreign investors, who would be scared away by financial crisis.⁴⁹ Thus, the government caused the oligarchs to support exchange rate stability, rather than the other way around.

The oligarchs were certainly not the only group opposed to devaluation as of late 1997. The main potential victim of a sharp drop in the ruble was the public. A falling ruble would devalue the population's ruble-denominated bank accounts. If, in addition, banks went bankrupt, depositors could lose their entire savings. Not only that, a general bank failure would threaten the system by which payments—including wages and salaries—were made. Decisionmakers at the time do appear to have been very concerned with public opinion. Yeltsin, while deflecting blame for August 1998 onto others, saw in the Kiriyenko government's reluctance to devalue early the—quite accurate—fear of losing public support.⁵⁰

A third source of pressure against devaluation was the IMF. The Fund was clear and forceful in its opposition. John Odling-Smee, director of the IMF's European II department, announced on May 29 that: "The IMF management and staff believe that ... a devaluation of the ruble can and should be avoided." As late as August 1998, the Fund reiterated its support for the

⁴⁹ Much as in Argentina in the 1990s under Menem, the government managed to entrench exchange rate stability *too well*. By creating vested interests in a stable exchange rate, it rendered its commitment to tight monetary policy credible. The flip side was that this reduced the government's flexibility when looser monetary policy might have preempted serious crisis.

⁵⁰ Yeltsin 2000, p.168. Clearly, such considerations should be strongest around the time of elections. But intense public opposition makes it difficult to accomplish any policy objectives. And with Yeltsin due to retire in two years, no young politician with ambition would want to be publicly associated with a painful devaluation.

“existing exchange rate and monetary policy strategy.”⁵¹ In fact, there was no lobby for a lower exchange rate at the time. As one central bank staffer put it: “The lobby was Illarionov.”⁵²

Nor does institutional conflict explain why the authorities did not devalue early on. In fact, all institutions—the central bank, government, and parliament—appear to have been united against such a devaluation.⁵³ Some observers hint that the central bank might even have wanted to provoke a crisis, and point out that Sberbank—which the central bank controls—did not roll over all its treasury bonds in July 1998. But since the outcome of the crisis was disastrous for the central bank leadership, it is not clear why they would have wished for this.⁵⁴ The mutual suspicion between different state bodies probably did not help. The October 1994 “Black Tuesday” crisis had prompted calls for the security services to investigate corruption at the central bank. Dubinin’s deputy Sergei Alexashenko reported that any subsequent attempts to let the exchange rate slide a little led to alarming phone calls from the Security Council and FSB.⁵⁵ But this would not have been a problem had a devaluation been agreed in advance with the government.

Was refusing to devalue early simply a “mistake”? Some suspect that this would only have hastened the crisis, rather than reducing its force. When the central bank did try to let the ruble slide slightly faster in early 1998, interest rates on GKO’s jumped; investors extrapolated the drop in the dollar value of their profits and demanded a higher rate to compensate. Given the government’s dependence on foreign capital to finance the budget deficit, an earlier devaluation

⁵¹ International Monetary Fund, *IMF Survey*, 3 August, 1998, p.238.

⁵² Author’s interview with one junior central bank official, Moscow, August 8, 2001.

⁵³ Author’s interview with Sergei Dubinin, Moscow, 14 December, 1999.

⁵⁴ Illarionov suggests that the central bank leaders were trying to save their jobs by “forcing the government to default on its debt before it devalued the ruble” (Illarionov 1999, p.75).

⁵⁵ Vladimir Mau, “Politekonomia finansovogo krizisa v Rossii,” in Institute for the Economy in Transition, *Finansovy krizis: prichiny i posledstvia*, 2000, Moscow: IET.

might merely have prompted an immediate budget crisis.⁵⁶ A second reason for doubting that an early devaluation would have helped was the country's large dollar-denominated debt. With foreign investors fleeing even faster, it might quickly have become necessary to default.⁵⁷

Some also argue that the banks would have been even more vulnerable had a devaluation come in 1997. According to Dubinin: "There is a Russian saying: The sooner you go to jail, the sooner you'll get out. We could have started the crisis earlier. But it would have been as serious, maybe more serious because banks then were less prepared."⁵⁸ If the aim was to buy the banking system time, it was surprisingly ineffective. The aggregate foreign liabilities of credit institutions on July 31, 1998, were almost exactly what they were on December 31, 1997.⁵⁹ Others argue that delaying increased the severity of the crisis.⁶⁰

3.3.2 Particular "mistakes"

Certain actions of the central bank and government seem puzzling in retrospect. Some would seem to have made crisis more likely, while others increased the costs when crisis came.

First, the central bank is accused of lax regulation of the commercial banks' international activities. In particular, the decision to remove the requirement that domestic banks hedge their risk on foreign currency forward contracts with the central bank seems odd. This increased the exposure of these banks to foreign currency risk. Why did the bank do this? According to the

⁵⁶ Sergei Sinelnikov-Murilev, "Faktery i etapy finansovogo krizisa v Rossii," in Institute for the Economy in Transition, *Finansovy krizis: prichiny i posledstvia*, 2000, Moscow: IET.

⁵⁷ Arkady Dvorkovich, "Upravleniye gosudarstvennym dolgom v usloviakh ottoka kapitala: vozmozhnosti preodoleniya dolgovogo krizisa," in Institute for the Economy in Transition, *Finansovy krizis: prichiny i posledstvia*, 2000, Moscow: IET.

⁵⁸ Author's interview with Sergei Dubinin, Moscow, 14 December, 1999.

⁵⁹ Information from Russian Central Bank, at www.cbr.ru. It is possible that their exposure to forward contracts, not shown on balance sheet, decreased.

⁶⁰ Yevgeny Yasin, "Vneshnie i vnutrennie faktery finansovogo krizisa," in Institute for the Economy in Transition, *Finansovy krizis: prichiny i posledstvia*, 2000, Moscow: IET.

central bank's 1997 annual report, the IMF demanded this step. Eliminating the requirement for such hedging with the central bank was necessary, according to the report, to meet the conditions of Article 8 of the IMF Articles of Agreement, which Russia signed in August 1996.⁶¹ The IMF's reasons made sense theoretically: the central bank was completely insuring foreign and domestic banks for currency risk, creating moral hazard. Perhaps a useful policy might have been to increase the required foreign currency reserves that commercial banks had to hold against such currency forwards. This would have both made forwards more costly (to the domestic banks) and slowed the inflow of foreign capital.

Second, throughout 1997 the central bank was reducing the barriers to repatriation of foreign investors' profits on the government bond markets. Why? Again, according to the bank, the IMF insisted on this.⁶² According to one junior central bank official, the leadership also hoped that reducing barriers would help to attract desperately needed capital. Judging by the statistics, it did. The share of non-residents on the GKO markets increased in the first half of 1998, and especially in July 1998 after news of the IMF credit was announced, at which point there was a strong inflow of non-resident capital. It was domestic investors who were fleeing the market most vigorously in 1998.⁶³

Third, Illarionov faulted the central bank for failing to build up sufficient currency reserves in the years preceding the 1998 crisis, despite large inflows of dollars. I simply lack the detailed financial data to judge whether or not this is a fair criticism. The key issue is what share of the hard currency that flowed directly through the central bank was in fact used to support the ruble's value during the period of the corridor, and what share frittered away or misappropriated in the way Illarionov implies. The central bank does not publish accounts that reveal the size of

⁶¹ See Central Bank of the Russian Federation, *Annual Report, 1997, 1998*, Moscow, chapter 7, p.134.

⁶² Ibid.

⁶³ Author's interview with one junior central bank official, Moscow, August 8, 2001.

its interventions on the currency markets. It is certainly true that the Bank devoted enormous resources to staff, salaries, and benefits. The reason it was able to do so was—primarily—central bank independence. The law permitted the central bank to dispose of its “profits” autonomously. Even so, the government—together with the parliament—insisted that the bank make a large additional contribution to the budget out of its profits in the summer of 1998.

Fourth, many have criticized the decision of the authorities in August 1998 not just to devalue but also to declare a moratorium on international debt payments by the domestic banks.⁶⁴ This was a lifeline thrown to the banks, which may not have helped them survive but did enable some to hide assets from creditors. According to those involved, the moratorium aimed simply to avoid a crash of the entire banking system caused by the government’s freeze of the GKO market, which was itself necessitated by the simple lack of cash to make the payments due. As Chubais put it: “For our banking system, not to receive the planned income from GKO’s would be close to a fatal blow.”⁶⁵ Another concern of the government was that the moratorium would reduce the pressure on the ruble by reducing the mass of dollars that domestic banks would have to buy to make debt payments.⁶⁶

A final “mistake” was the government’s attempted debt swap in July 1998. Under this program, also introduced on the IMF’s recommendation, holders of ruble-denominated, short-term GKO’s were allowed to trade them for dollar-denominated 7 or 20 year bonds with guaranteed 14 percent yields.⁶⁷ Such debt swaps risk merely revealing the government’s desperation, and so hastening the crisis. If they fail to avert collapse, the hard currency obligations are harder for the government to repay after devaluation. Some previous debt swaps

⁶⁴ E.g. Fyodorov (1999, pp.216-17).

⁶⁵ Anatoli Chubais, “Posle krizisa: 17 avgusta—plata za bezotvetstvennost,” in Anatoli Chubais, ed., *Privatizatsiya po-rossiiskii*, 1999, Moscow: Vagrius, p.344.

⁶⁶ Author’s interview with Oksana Dynnikova and Viktoria Kotova of the Economic Experts Group.

⁶⁷ William Tompson, “The Bank of Russia and the 1998 Rouble Crisis,” in Vladimir Tikhomirov, ed., *Anatomy of the 1998 Russian Crisis*, 1999, Melbourne, University of Melbourne, pp.108-44, at p.123.

of this kind had failed, as in Mexico in 1994, and some economists viewed the Russian attempt as foolish and dangerous.⁶⁸ The reason for this measure does not appear to have been capture—most of the oligarchs did not take up the offer. Rather, the motivation was pressure from the IMF and the hope that it might actually reduce the short term debt problem that the government faced.

3.2.3 *Fiscal irresponsibility?*

Almost all observers agree that a fundamental cause of the August 1998 crisis was large fiscal deficits and growing public debt. According to Chubais, who was brought in at the peak of crisis to negotiate with the international institutions, “On August 17 we paid for six years of irresponsible budget policy.”⁶⁹ Poor fiscal policy is often explained as the result of a combination of interest group capture—the inability of parliament and government to stand up to scores of special interests—and institutional incoherence. Representatives of the government blame parliament for repeatedly passing unrealistic budgets containing unsustainable expenditures. They also blame the Duma for refusing to pass key parts of the government’s emergency fiscal program in July 1998.⁷⁰

Fiscal policy was actually improving in some respects in the years that preceded August 1998. The federal budget deficit fell sharply from the fourth quarter of 1996 (9.2 percent of GDP) to the third quarter of 1998 (3.0 percent of GDP). In the first half of 1998, the federal budget even had a primary surplus of 0.3 percent of GDP. However, these figures looked good in part because a large share of tax revenues was paid in non-cash forms during this period. Debt service absorbed about 47 percent of cash tax revenues in 1997.⁷¹

⁶⁸ Nadezhda Ivanova and Charles Wyplosz, “Who Lost Russia in 1998?” 2000, Paris: manuscript, p.32.

⁶⁹ Chubais 1999, p.347.

⁷⁰ See also Aganbegyan 2000.

⁷¹ *Russian Economic Trends*, 1998, 2, p.34.

In general, the evidence that poor fiscal policy lies at the heart of financial crises is not unequivocal. Fiscal imbalances often precede currency crises, but not always (Mexico in 1994, Chile 1978-82, Finland 1988-92 are counterexamples).⁷² And many cases of fiscal imbalance do not lead to currency crises. Nor is there a threshold level of the budget deficit at which crisis is triggered. Sachs, Tornell, and Velasco examined how 20 emerging market economies were affected by the Mexican Tequila crisis of 1994.⁷³ They found that “fiscal policy stances during the period 1990-94, in and of themselves, do not explain why some countries experienced greater financial crises than others in the aftermath of the December 1994 devaluation.”

In Russia, the markets do not appear to have been responding primarily to fiscal deficits. In fact, the interest rate that the government had to pay on its bond correlates *negatively* over time with the size of the deficit—the smaller the deficit, the more reluctant were investors to lend (see Figure 4). This was particularly true in the period leading up to August 1998. From 1997 Q3 to 1998 Q3, the federal budget deficit fell from 6.3 to 3.0 percent of GDP. The average yield on government bonds rose during this period from 19 to 98.8 percent.⁷⁴ It is not clear, in any case, that sharp expenditure cuts would have created confidence in the markets since investors might well simply have believed that such temporary fiscal restraint was not politically sustainable.⁷⁵

[Figure 4 Here]

3.2.4 Conclusion

⁷² Sebastian Edwards, *Real Exchange Rates, Devaluation, and Adjustment: Exchange Rate Policy in Developing Countries*, 1989, Cambridge: MIT Press.

⁷³ Jeffrey Sachs, Aaron Tornell, and Andrés Velasco, “Financial Crises in Emerging Markets: The Lessons from 1995,” *Brookings Papers on Economic Activity*, 1, 1996, pp.147-215, at p.193.

⁷⁴ What created the dangerous fiscal situation was not so much the level of the budget deficit or the debt as its very short-term structure. This was, in turn, caused by the lack of investor confidence, which was fueled by the Asian financial crisis and by perceptions of political instability in Russia more than by current fiscal policy, and—as in all financial meltdowns—fed on itself.

⁷⁵ Yegor Gaidar, presentation at UCLA, June 14, 2002.

The monetary authorities decided not to devalue in late 1997 because even a moderate devaluation would have been extremely costly for Russian banks and the public. The IMF supported them in this stance. Policymakers hoped that it might be possible to scrape through without a crisis. While this might seem foolish in retrospect, it was not so obviously wrong at the time. Fiscal performance, although weak, was improving rapidly—and, in any case, market perceptions did not seem to be closely related to the actual fiscal data. External pressures, beginning in Asia, certainly played an important part in scaring away investors, as did the fall in the international oil price, which accelerated sharply in early 1998. The currency crisis of August 1998 resulted not so much from capture, institutional conflict, or simple mistakes as from a high-risk gamble—probably the best of the unattractive policy alternatives available at the time—that the government lost.

After 1996, Russia opened its capital markets to foreign investors at a pace that in retrospect seems foolish. One reason for this was pressure from the IMF. However, the spike in interest rates that occurred in the 1996 presidential campaign had left the government with GKO debt that would have been extremely hard to service without foreign capital. IMF officials were not always sure that liberalizing access for foreigners to the government bond market was a good idea. Yegor Gaidar recalls a conversation with Stanley Fischer of the IMF in late 1996, during which Fischer expressed doubts that the Russians should open up the government security market to foreigners. Gaidar recalls telling him that there was no alternative: “Without serious inflows of foreign money, it was absolutely impossible to see how we could cope with the problem of the GKOs and reduce interest rates.”⁷⁶

In sum, although the oligarchs and their banks certainly made their opinions known to the monetary authorities during this period, their interests were actually aligned with those of the general public: both desperately wanted to avoid a devaluation. Given the choice between

⁷⁶ Ibid.

provoking a crisis for sure in late 1997 and risking a potentially larger one in 1998, the government gambled.⁷⁷ The monetary authorities may have erred in liberalizing capital markets too fast, but the alternatives were also highly unappealing. Most of the failures of this period look more like consequences of difficult economic conditions than failures of government per se.

3.3 1998-2003

After the spurt of inflation that followed the devaluation, inflation returned to moderate levels quite quickly. The nominal exchange rate stabilized at around 24 Rubles/\$, and then began a gradual decline. Over the course of the next few years, the real exchange rate rose gradually. Exchange rate management during this period has not been subjected to serious criticism. However, certain features deserve comment.

First, the experience of this period casts doubt—again—on the role that political fragmentation and institutional conflict, as well as oligarch capture, played in previous failures. After Putin's rise to power in 1999-2000, political conflict appeared to diminish sharply. The 1999 election secured the government a stable majority in the Duma for the first time since 1992, and confrontations between government and parliament became rare. There was also very little evident disagreement between the central bank and the government. The oligarchs appeared, at least temporarily, weakened by their 1998 losses and on the defensive.

Yet exchange rate policy was extremely similar to that pursued between 1995 and pre-crisis 1998. Although the authorities no longer announced a corridor, the central bank still intervened to support a gradual nominal depreciation along with gradual real appreciation. While in June 1995-June 1998 the ruble's nominal value fell by 24 percent, in June 1999-June 2002 it fell by 22 percent. And whereas in June 1995-June 1998 the real exchange rate appreciated by 39

⁷⁷ Since the perceived interests of the oligarchs and the public were aligned against a devaluation, it is hard to know the relative weight that each received in the authorities' calculations.

percent, in June 1999-June 2002, it appreciated by 33 percent.⁷⁸ As Figure 1 shows, by the end of 2003, the real exchange rate was close to its pre-crisis peak.

What did change in this period was fiscal performance. Budget deficits turned into surpluses. The government began paying down, rather than accumulating, debt, while the central bank built up large currency reserves. This change in fiscal performance seems to have had more to do—at least initially—with changes in external conditions than with changes in government policies. A soaring international oil price and rapid economic growth were as salutary for the economy and state budget as the sinking oil price and stagnation of 1995-8 had been harmful. They enabled the central bank to accumulate large currency reserves and the government to reduce its borrowing. As a result, despite a large real appreciation, the ruble is viewed today as much less vulnerable than in the mid-1990s.

That monetary authorities chose similar exchange rate policies in periods when (a) the oligarchs were at their strongest, and (b) the oligarchs were perceived as far weaker suggests that oligarchical capture may not have had much to do with the choice of policies. That authorities chose similar policies in periods when (a) the state was perceived as seriously fragmented and factionalized, and (b) conflicts and fragmentation had been muted by Putin's popularity and electoral mandate suggests, in turn, that such factors may not have been as influential as people thought at the time. The reduction in political fragmentation did not require any institutional changes. It resulted directly from Putin's soaring popularity.

Second, while the long-run trend in the ruble's value was quite clear and predictable, the short-run path was less smooth. In fact, the gradual nominal depreciation was punctuated by frequent small reversals. The reason for such a pattern was not entirely clear even to those working in the bank, where it was known as "Cherepanov's Staircase" after a former head of the bank's foreign operations department who set the daily level of central bank intervention (see

⁷⁸ Calculations from *Russian Economic Trends* database and monthly updates. Real exchange rate is monthly average rate against dollar deflated by CPI.

Figure 5).⁷⁹ If such small irregularities were deliberately generated by the bank, they are somewhat puzzling. The only benefit I can see in unpredictable movements is to create inside information in the hands of those who decide them.

[Figure 5 Here]

4 Conclusions

Russia suffered very rapid and volatile nominal exchange rate depreciation in the 1990s, alongside sharp real appreciation in the first half of the decade. In August 1998, the central bank gave up trying to defend the previous currency corridor, and the ruble crashed. In the subsequent period, the currency depreciated slowly in nominal terms and rose gradually in real terms. The Russian authorities have been criticized harshly for their failure to provide nominal and real exchange rate stability, and this has been viewed as a symptom of a more general failure of governance. The country's currency instability has been variously attributed to capture of the state by big business, conflict between different state actors, and straightforward ignorance or policy mistakes.

The analysis of this chapter suggests a rather different view. First, comparison with other postcommunist and developing countries shows that Russia's macroeconomic difficulties were not unusual. Many middle income and developing countries suffer from similar turbulence. The exchange rate problems of Argentina, Brazil, and Poland in the 1980s were more severe than those of Russia in the 1990s. There was nothing uniquely Russian—or even postcommunist—in the combination of inflation, exchange rate instability, loose budgeting, and speculative crisis that the country experienced.

⁷⁹ Author's interview with one junior central bank official, Moscow, August 8, 2001.

Second, while lobbying oligarchs, institutional conflict, and economic misconceptions helped define the context in which policy was made, these factors do not convincingly explain the pattern of choices made by policymakers. They also do a poor job of explaining why exchange rate management was much more successful in some periods than in others. Policy—and performance—changed dramatically in 1995 without any significant change in institutions or in the degree of conflict among state actors, and at a time when oligarch influence was rising. When overt political conflict did subside under Putin, exchange rate policy remained very similar to that in the previous period. Although fiscal performance did improve after 1999, this reflected changed economic conditions—high oil price, economic growth—rather than a fundamentally different policy or new institutions. It is easy in retrospect to identify “mistakes” of economic policymakers, some of which do seem like manifestations of incompetence or corruption. But most of the so-called “mistakes” were not caused by ignorance or misunderstanding of economic theory. Rather, they resulted from ultimately unsuccessful but understandable attempts to maneuver between different dangers, making risky tradeoffs in the gray areas of science.

Nor does the common contention that Russian policymakers are unresponsive and that the force of electoral accountability is too weak work as an explanation for this perceived failure of governance. Russia’s political leaders are often accused of ignoring the wishes of voters in order to favor their cronies. However, a simple analysis of who stood to gain and who to lose from particular exchange rate policies at key points suggests that it was precisely the voters’ interests that were prioritized at the expense of economic elites. Although economic insiders were favored in many ways by government policies in the 1990s, exchange rate policy does not seem to have been a major source of such favors. The problem—especially around the time of elections—may have been more a populist *excess* of responsiveness.

The government tolerated a high real exchange rate in the mid-1990s as part of a strategy to slow inflation and keep imports cheap for consumers. Business elites at the time had systems in place to profit from inflation and could have sold oil more competitively under a lower exchange

rate. The urgency of policymakers' desire to beat inflation in 1995 was fueled precisely by the conviction that without this Yeltsin could not be reelected in 1996. The same hope of attracting voters from Zyuganov led to the bursts of pre-election spending, funded at high interest rates. It was to deal with the resulting debt that authorities later chose to relax capital controls. The choice not to attempt an early devaluation in 1997 was motivated at least in part by the fear that, after the experience of 1992, voters would not forgive reformers for inflicting another dose of such medicine.⁸⁰ In fact, had the state been more effectively captured by the energy sector oligarchs, Russia might well have continued with a floating exchange rate and protected domestic financial markets, avoiding the 1998 crash. In the longer run, the public suffered greatly from the 1998 devaluation. But there was an unavoidable tradeoff in 1995-8 between low inflation and a low risk of financial crisis. In this case, the very competitiveness and historical significance of Russia's elections meant that pleasing the voters in the short run took precedence over their longer run interests.

So what does account for the vagaries of Russian exchange rate policy and performance in the 1990s? The most convincing explanation has little to do with the incoherence or cooptation of state institutions, or with the unresponsiveness, ignorance, or corruption of officials. The main reason why Russia—and just about all middle income countries like it—experience macroeconomic instability more frequently than developed countries is that the former face much greater economic challenges from a financially weaker position.

Developing market economies that are integrated—or integrating—into the world economy are particularly vulnerable to shifts in international market conditions. Their exports tend to be less diversified, rendering them sensitive to price shifts. Their currency and gold reserves are usually small. Their domestic financial markets tend to be shallow and subject to

⁸⁰ If devaluing in 1997 offered a higher expected value than gambling on avoiding a crisis, then the public should—if fully informed—have preferred this option. However, it was not fully informed. And it was not clear that the expected value of such an early devaluation was higher.

manipulation by small numbers of large investors. They rely on foreign capital for major infrastructure investments. But they are treated by international financial markets with alternating manic excitement and exaggerated reserve.

Russia had to struggle against all these factors. As of 1992, it had no currency or gold reserves to speak of, and no experience issuing government bonds. Its export and tax revenues were closely linked to world commodity prices, which plunged and then rose in the mid- to late-1990s. Financial markets were not just small, they had to be built from scratch. At the same time, the tasks of economic transformation that confronted Russia—and most other postcommunist states—were far greater than anything the advanced, capitalist countries had contemplated since 1945. Russia inherited a large monetary overhang, distorted relative prices, an obsolete capital stock, and a ballooning budget deficit. Lacking a large stabilization fund like that provided to Poland, any country with these problems was doomed to an extended period of macroeconomic turbulence. If, as President Yeltsin admitted in 1997, the Russian government tended to act as a “fire brigade” rather than implementing a strategic plan, this was not without reason. In many senses, both economic and political, Russia was on fire.⁸¹

What caused the—at least temporary—stabilization of 1999-2003 was the burst of economic growth, stimulated in part by the 1998 devaluation, in part by the resurgence of oil prices, which improved Russia’s fiscal accounts and permitted accumulation of a very large currency reserve. By early 2003, the central bank had over \$50 billion in gross international reserves (\$41.5 bn in net reserves), equivalent to almost 90 percent of 2002 imports.⁸² These reserves, more than anything else, will buffer the economy from future swings in international

⁸¹ See Colton and Holmes “Introduction”. Perhaps a more valid criticism would be that the “fire engine” did not do a better job of putting out the fires. However, given the real (although small) possibilities of territorial disintegration and Yugoslavia-style civil war in the early 1990s, the fire station was not without its successes.

⁸² *Russian Economic Trends*, monthly update, March 2003, Table 22.

prices and investor sentiment. Like the earlier problems, the recent improvement owes more to changes in economic conditions than to any change in institutions or policy.

While economic conditions define the evolving challenges and constraints within which policymakers maneuver, the policies themselves obviously affect performance. The most notable improvement in Russian policy came in 1995 with the stabilization program and introduction of the currency corridor. I argued that pro-reform politicians were motivated at this time by the urgent desire to provide voters with one visible reform success before the presidential election. But the desire does not explain the implementation. Later, in the summer of 1998, a reformist government failed to persuade parliament to adopt a fiscal emergency package that might have forestalled the panic on currency markets. Why success in one case and failure in the other?

I do not believe this pattern of outcomes was pre-determined by any general logic. One can show in retrospect why the political strategy of reformers in 1995 succeeded in breaking the opposition of elites, while that adopted in 1998 did not. In the first case, benefits were provided to coopt the leading commercial banks and the central bank, while implicit energy subsidies served to demobilize and disorganize opposition from the industrial sector. In the second, the Kiriyenko government simultaneously attacked the interests of all major political actors—the oil barons, regional governors, and parliamentary opposition—who then united to oppose it.⁸³ Why reformers chose a more effective strategy to deflect political opposition in 1995 than in 1998 may have as much to do with the individuals involved as the political context.

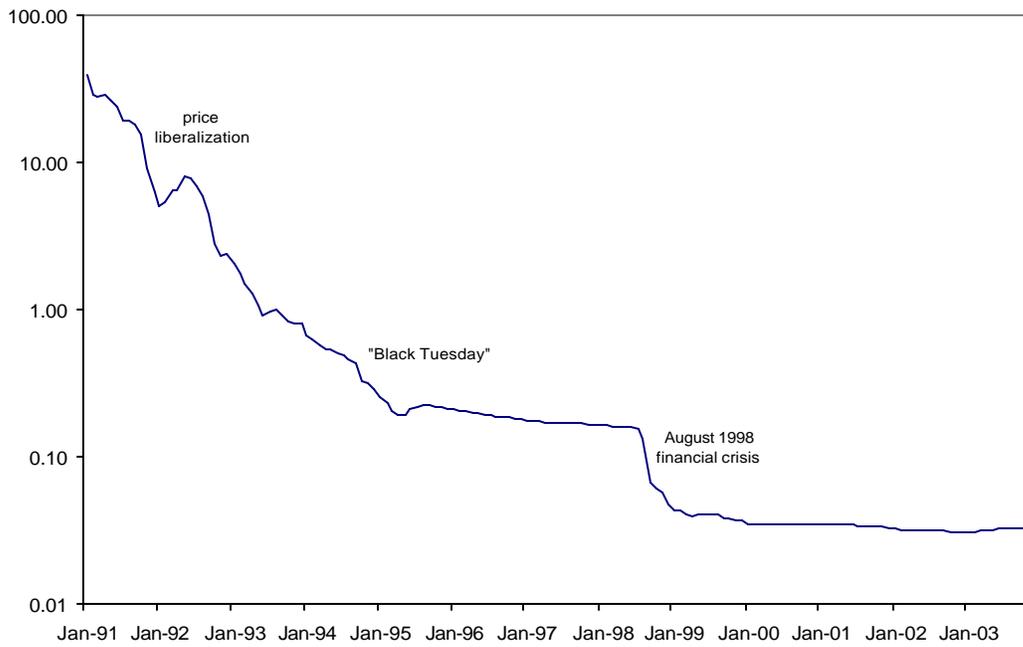
What does all this suggest about Russia's broader problems of governance? One should clearly be cautious in generalizing. That Russia's exchange rate troubles seem to have little to do with characteristics of its state or defects of its governance does not mean that such factors are unimportant in explaining other perceived government failures. In other areas, institutional incoherence or oligarchical capture may indeed have interfered with policymaking. But two general points do emerge. First, as several other chapters in this volume attest, the effectiveness

⁸³ These arguments are spelled out in more detail in Shleifer and Treisman 2000.

or capacity of a given country's government can only be evaluated by comparing it to those of other countries rather than to an idealized vision of how governments operate elsewhere in the world. Second, such comparisons must take into account the vastly different challenges that governments in different countries face and the different conditions that confront them. Such differences in external factors may fully explain what appear at first to be differences in the quality of institutions.

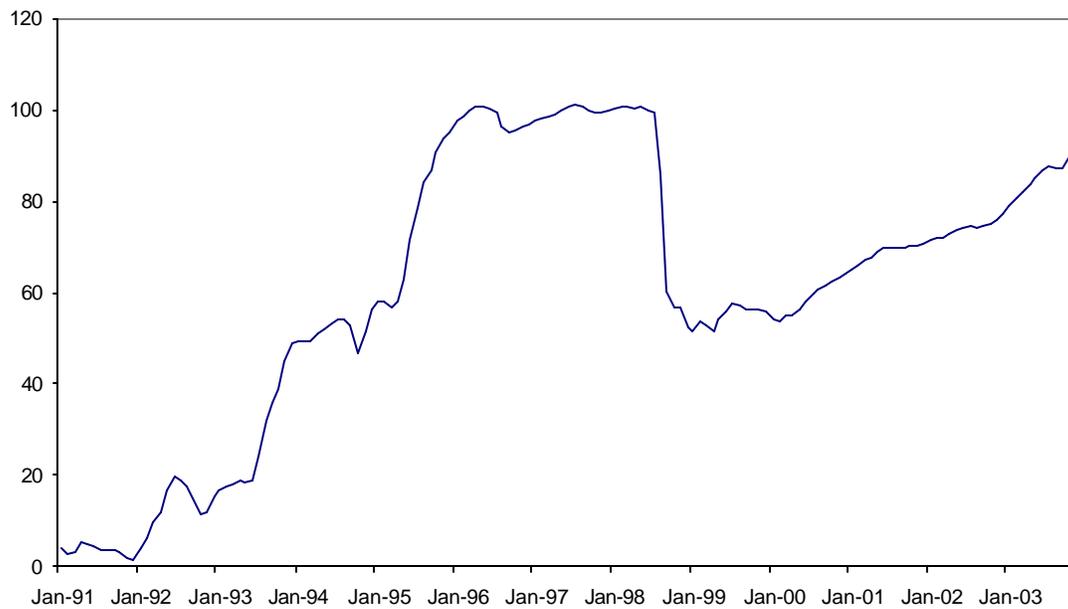
Both these points would seem banal, except that they are so often ignored in journalistic and academic analyses of Russia. Some critics of the country's economic and political performance in the 1990s seemed to be comparing Russia—implicitly or explicitly—to long-established, capitalist democracies that faced far milder challenges. Yet were an American president obliged to simultaneously cut the public budget by 50 percent, reduce all tariffs, reform the banking system, and run for reelection against a credible Communist candidate, the USA too would surely see some turbulence. No matter how well-oiled and flexible a state's institutions, if it faces fickle international investors with a depressed economy and minimal currency reserves, it is in for a rough ride. This is not to deny the many imperfections of Russian state institutions. But it is to argue against faulty comparisons that strengthen complacency about the political institutions of the West while obfuscating the causes of the problems afflicting postcommunist societies.

Figure 1: Nominal exchange rate (\$/R), Russia 1991-2003



Source: Russian Economic Trends database, Central Bank of Russia *Bulletin of Banking Statistics* December 2003.

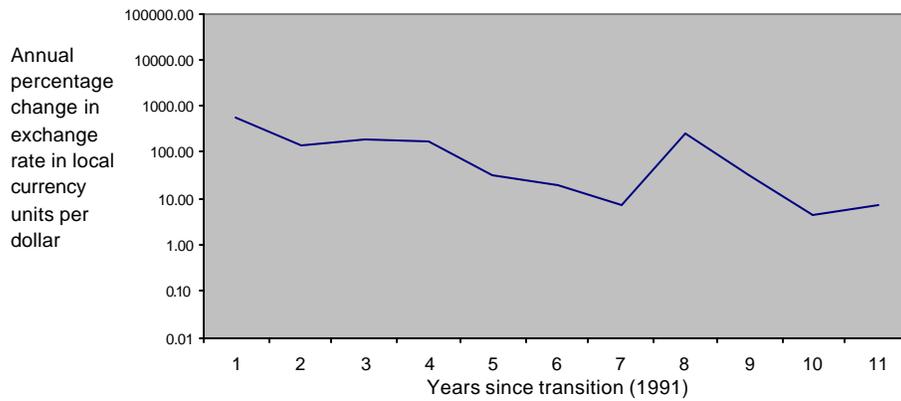
Figure 2: Real exchange rate, Russia 1991-2003



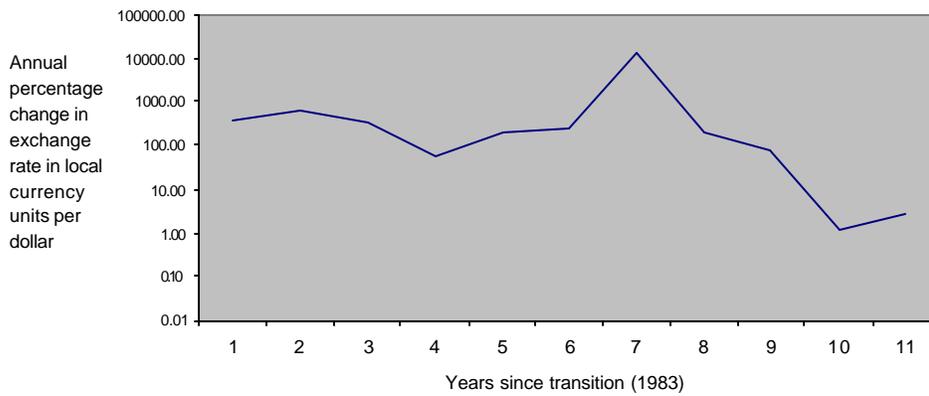
Note: Exchange rate (\$/R) deflated by CPI, December 1997 = 100; Source: Russian Economic Trends database, Central Bank of Russia *Bulletin of Banking Statistics* December 2003.

Figure 3: Exchange rates and democratization in developing countries

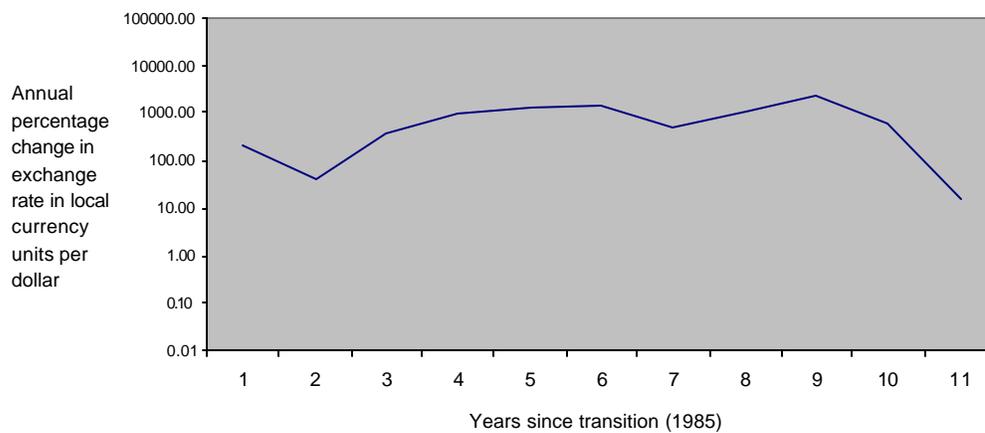
Russia



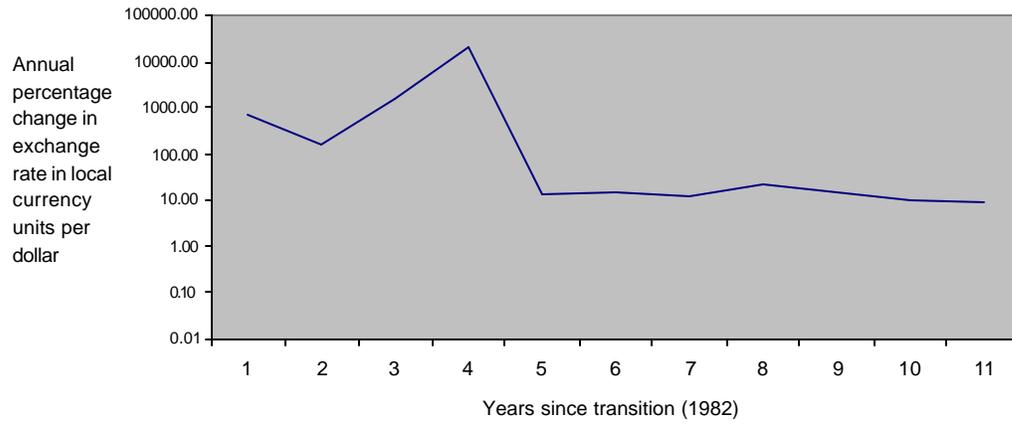
Argentina



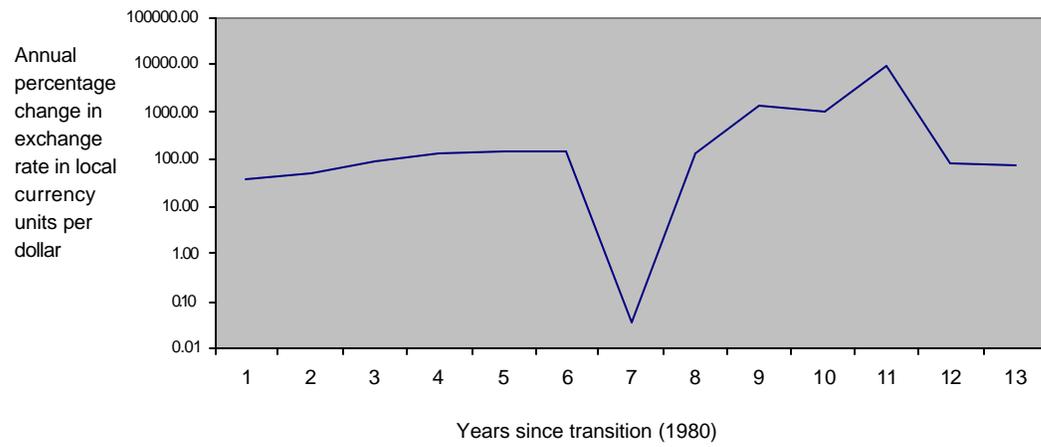
Brazil



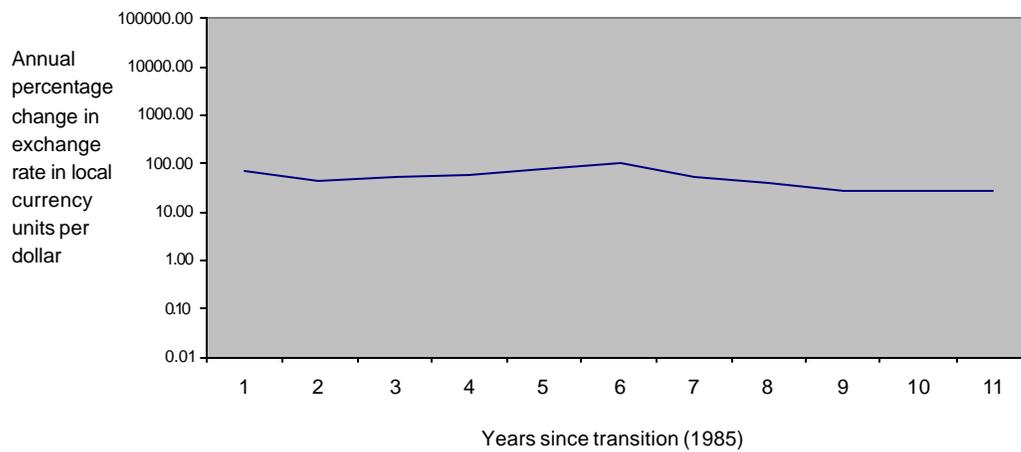
Bolivia



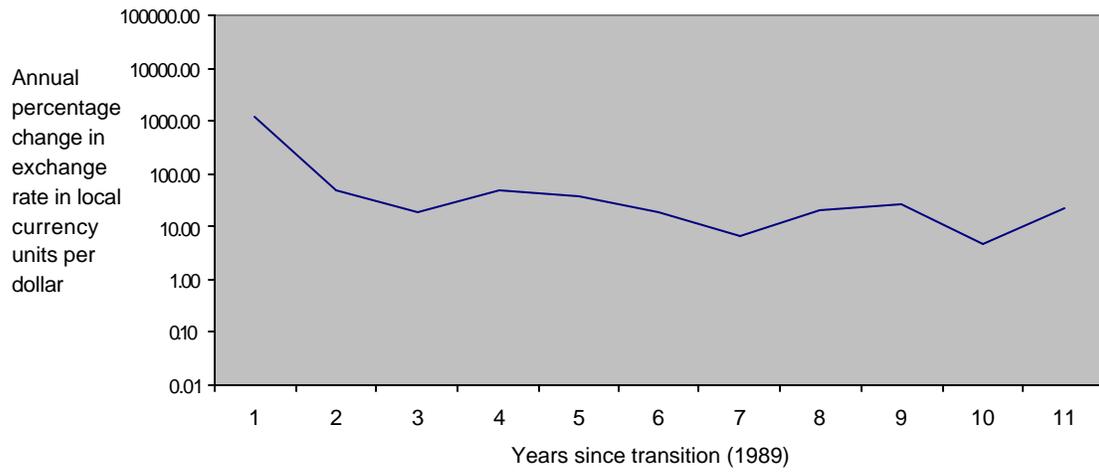
Peru



Uruguay



Poland



Bulgaria

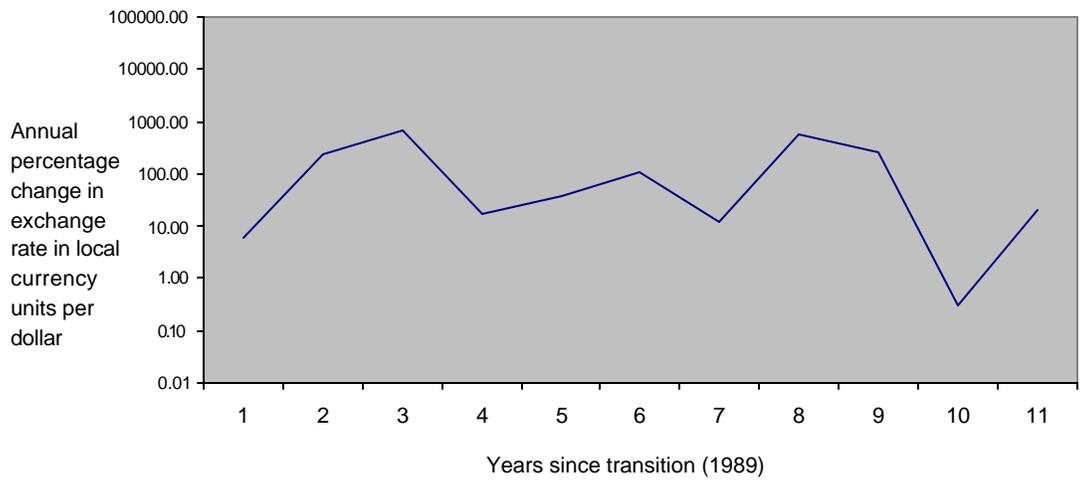


Figure 4: Federal budget deficits and interest rates on government bonds, Russia 1996-8

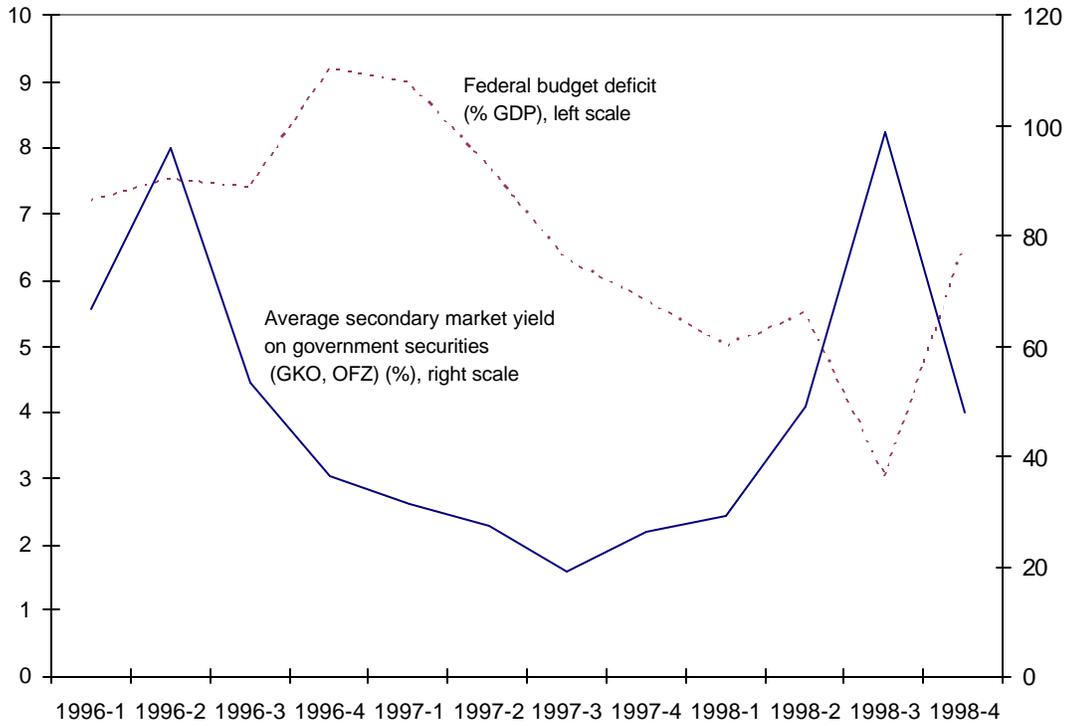


Figure 5: Cherepanov's Staircase (December 2000-March 2001)

