

Russia's Struggle with Stabilization: Conceptual Issues and Evidence

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The most important question about Russian economic reform is how to avoid a collapse of Russia's nascent democracy in the face of highly unstable political and economic conditions. The precarious situation could unravel in a spiral of self-reinforcing destructive responses: criminality, regional separatism, tax evasion, and flight from the currency. A combination of monetary tightening, an early pegging of the exchange rate, and large-scale international assistance to support stabilization offers Russia the most realistic chance of avoiding political catastrophe. International assistance to Russia during the past three years has been inadequate in amount and without a proper conceptual framework. The article offers a strategy for Russian stabilization and Western assistance based on theoretical and empirical analysis. The concerns raised apply not only to Russia, but more generally to weak states in acute financial crisis, for which the current methods of delivering aid are typically too slow and too oblivious of the risks of state collapse.

Russia faces at least three fundamental economic challenges. The first is to overcome the state insolvency that is a legacy of the defunct Soviet regime. The second is to establish a market system on the ruins of central planning. The third is to manage the profound problem of structural adjustment, as workers and resources move from heavy industry to light industry and services. And it must manage these three enormous tasks while attempting to consolidate democracy and transform itself from empire to nation-state.

Any one of these economic tasks would challenge a society's stability and forbearance. The combination of all three is historically unprecedented in scale and extent. It is not surprising, therefore, that Russia has lived perilously close to hyperinflation and social instability during the first three years of post-Soviet reform and adjustment. This article discusses the design of macroeconomic policies that are most appropriate in the face of Russia's extreme economic crisis.

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My thesis is that the "shock therapy" approach to stabilization—a clearly announced, comprehensive program including an abrupt tightening of monetary conditions, an early pegging of the exchange rate, and large-scale international aid to support the stabilization—is desirable because it is the least-cost and least risky form of stabilization.¹ Rapid, decisive, comprehensive reform reduces uncertainty, aligns public expectations in support of stabilization, and adds credibility to government policies. Such credibility is extremely important in highly unstable conditions such as Russia's. When governments are politically and financially fragile, adverse expectations can become self-fulfilling, so that economic reforms fail even when fundamental conditions are adequate.

The risks facing Russia exist in large part because of grave weaknesses of the Russian state in the aftermath of communism. Political instability and financial distress are making it extremely difficult for the Russian government to provide the basic public goods required of a functioning economy and society: law and order, public administration, a fiscal system to pay for the army and vital social services, and a working monetary system to support the division of labor among enterprises. A key element of radical market reforms, particularly shock therapy stabilization, is to severely restrict the domain of state activity in economic life, so that the government can focus its limited capacities on its core responsibilities of monetary stability and social protection. The most positive recent news in Russia has been that the new constitution adopted by referendum in December 1993 seems to have contributed to an institutionalization of democratic political life, which has strengthened the capacity of the state to pursue its basic functions, including macroeconomic stabilization and law enforcement.²

Stabilization Crises in Weak States

Russia is similar to many countries in the world over the past twenty years in emerging from authoritarian rule in the midst of financial crisis. Russia's crisis is far more complex, however, by virtue of the scale of its problems, its previous history, the size and diversity of the country, and the need to create completely new state institutions. It is notable, therefore, that even countries whose position was easier—Argentina, Bolivia, Brazil, Nicaragua, Peru, and Yugoslavia—have succumbed to hyperinflation in the midst of the democratic transition.

New democracies that inherit a financial crisis are especially susceptible to hyperinflationary collapse. When states are financially weakened and the political rules of the game are unclear, the government can be overwhelmed by various kinds of contagious antisocial behavior, such as massive tax evasion or a flight from the domestic currency. Abnormal behavior spreads rapidly through contagion as the public comes to expect that the state will be unable to enforce normal behavior. Almost always, these contagions occur only after the state has already been gravely weakened by poor fiscal conditions.

The key to contagion is that pessimistic expectations about state power can prove self-fulfilling. Once unshakable regimes can collapse when undermined by profound

financial weakness that creates adverse public expectations. The normal monopoly of state power can disappear, and executive authority may become helpless in the face of civil disorder and violent challenge. Society can be thrown into a Hobbesian war of all against all, until a new (and often brutal) central authority is reestablished. The population may accept a new tyrant not because of a preference for tyranny but because of a preference for order over a brutal state of nature.

The risk of a vicious circle of a weakening state and growing instability has important implications. It may not be enough for foreign donors to demand that the government pull itself together as a precondition for large-scale assistance. Foreign assistance may be necessary at the very start of reforms to halt the downward spiral of government collapse and to change expectations about the outcome of reforms.³ Up-front assistance may make it possible to achieve early visible results—such as currency stabilization and an end to high inflation—that become a prelude to more fundamental changes, such as overhaul of the fiscal system.

Fiscal Weakness and State Collapse

Several simple examples of immediate relevance to Russia illustrate the risks of state collapse. The Russian state is threatened by at least six types of contagious antisocial behavior: a flight from the ruble, tax evasion, criminality, regional separatism, foreign debt overhang, and panic by government creditors. For each case there is a "good" equilibrium that permits the government to function normally and a "bad" equilibrium in which basic state functions collapse. These models are deliberately very simple (technicalities are generally left to the endnotes) but nonetheless illustrative of the general problems of a weak state. Later, explicit dynamics are added to show that whether society reaches the good or bad equilibrium depends on initial conditions (determined by a country's history) and expectations.

Money demand. Suppose that domestic firms hold rubles or black market dollars for transaction purposes. If they hold rubles, they enjoy lower transaction costs because there is no need to resort to the black market. On the other hand, they must bear the inflation tax on ruble holdings. Suppose that the government is raising a given percentage of GDP through seigniorage, which is shared among enterprises holding rubles. If all firms are using rubles, the inflation tax is spread widely and the inflation rate and the inflation tax paid by each firm are low. If most firms have fled into dollars, the inflation tax would fall only on the few remaining firms holding rubles. The inflation rate would be higher, and the cost of using rubles would be higher as well. The more firms that flee to the dollar, the higher is the incentive for the remaining firms to flee to the dollar as well. (Boone forthcoming also offers a model of a self-fulfilling collapse of money demand in the context of postcommunist market reforms.)

Tax evasion. A firm can choose to go underground to evade taxes. In doing so, however, the enterprise loses some of the public goods provided by the government, such

as police protection, enforcement of contracts, and ready access to the banking system (which exposes the enterprise to greater risk of detection). A firm should balance the benefits of the public good against the cost of tax payments. Its decision depends on what *other* firms are doing. If other firms are paying their taxes, the government is able to provide a significant scale of public goods. In that case, it pays to remain legal. But if the other firms have stopped paying their taxes, the state is in near-collapse and cannot provide public goods on a significant scale. The firm sees no reason to keep paying taxes and goes underground. Formally, there are two equilibriums: one in which all firms pay their taxes, and one in which no firms pay their taxes.⁴

Law enforcement. Criminal behavior can spread for another reason: the probability of getting caught and of being prosecuted drops as criminal activity rises. If most firms are violating the law, law enforcement authorities must divide their scarce enforcement resources among a large number of cases, so the chances of any particular firm being caught and punished are low. If most firms are obeying the law, however, the chances of catching and punishing a violator are much higher. So, if all other firms are breaking the law, the remaining firm will do so as well, and if all other firms are obeying the law, the remaining firm will also obey the law (Sah 1991). Therefore the rate of criminality may be subject to multiple equilibriums.

Fiscal federalism. In a loose confederal state like Yugoslavia in 1989, the Soviet Union in 1990–91, and Russia today, the federal government must collect taxes from regions that may have incentives to delay or underpay their federal tax obligations. Regional leaders may withhold tax payments intended for the federal government at the risk of being punished in the future (for example, at the end of the fiscal year). But withholding taxes reduces the political strength of the central government and the likelihood that it can effectively punish the region. Again, two equilibriums are possible: one in which most or all regions pay their taxes so that the real threat of retaliation makes illegal withholding too dangerous, and another in which tax withholding is so widespread that the center is weakened to the point of being impotent. This kind of behavior undermined the Yugoslav federal government in 1989 and the Soviet Union in 1991. It could still threaten the Russian Federation.⁵

Foreign government debt. Suppose that there is a foreign debt burden that is greater than the government's immediate capacity to repay and that there are many potential creditors. If each creditor makes a new small loan, the government could undertake enough profitable additional investments to pay back the original debt plus the new debt. But if most creditors decide not to make a loan, the government is unable to undertake the new investments and so remains unable to repay the original debt. In this circumstance no single small creditor should extend a new loan, since a small loan will not solve the problem but will merely get added to the stock of unpaid debt. The government is thereby forced into outright default (Sachs 1984).⁶ One remedy to a creditor panic of this sort is to let the new investors lend

on a priority basis, so that their repayments are guaranteed ahead of existing debt. This arrangement is common in domestic bankruptcy proceedings, but there are no agreed mechanisms in the international arena for assigning priority to incremental credits.⁷ An alternative is a large international line of credit from official sources.⁸

Domestic government debt. In the case of an overhang of domestic debt, which unlike foreign debt can be partially "repudiated" through inflation, a panic among domestic debt holders can lead to inflation in the same way that a panic among foreign creditors can lead to outright default (Calvo 1988). If investors have strong confidence in the government's ability to avoid inflationary finance, nominal interest rates will be low (because the currency will be expected to remain stable in value) and the burden of debt servicing will also be low. The budget deficit will therefore be small, and the government will be able to avoid inflationary finance. If, instead, government bondholders believe that inflationary finance will be high, they will require a high nominal interest rate to hold government debt. This, in turn, will lead to a heavy debt-servicing burden and a large budget deficit, so the government will have to resort to inflationary finance. The pessimistic inflationary forecast becomes self-fulfilling, not unlike the contagious flight from currency mentioned earlier.

Credibility and the Costs of Stabilization

There are two important implications of the cases of multiple equilibriums just described. The most direct is that stabilization may fail because of self-reinforcing pessimism about social prospects. The second implication is that the prospects for stabilization tend to be intrinsically uncertain, since rational actors can hold either optimistic or pessimistic assessments. This uncertainty tends to raise the costs of successful stabilization. As macroeconomists have stressed during the past two decades, there is a social premium to be achieved by lowering the uncertainty and raising the credibility of a stabilization program.

The costs of reforms that turn out to be successful but that appeared "incredible" are well described by Calvo (1989). Suppose that the government is trying to end inflation but that government bondholders attach some positive probability to a self-fulfilling panic. Nominal interest rates will be raised in anticipation of expected inflation. Expected inflation will reflect a weighted average of inflation assessments by those who believe a panic will occur and those who do not. Now if the panic does not occur and stabilization is in fact successful, ex post real interest rates will be high because nominal interest rates at the outset of stabilization efforts included a premium for inflation that did not materialize. The resultant high real interest rates can raise the costs of stabilization by leading to bankruptcies, which could spill over into a banking crisis if commercial banks are saddled with bad debts.

Russia's stabilization attempts during 1992-94 show every sign of incredibility. For example, in 1994 nominal monthly interest rates were running 8 to 10 percentage points above monthly inflation, suggesting widespread expectations of subsequent currency depreciation. Since stabilization efforts were on the whole

successful during the first half of 1994 in reducing actual inflation, the result was a sustained period of enormously high real interest rates, with attendant risks to enterprises and commercial banks. The rapid buildup of bad debt in mid-1994 seems to have contributed to the subsequent relaxation of monetary policy at the end of 1994. In this sense, lack of credibility appears to have directly undermined the subsequent stabilization effort.

Political Leadership and Credibility

Most of the time, society is not on the knife edge between stability and collapse. In the United States we assign a very low probability to spontaneous flight from the dollar, even though in theory a complete collapse of the dollar might be a self-fulfilling equilibrium. The reason, it seems, as stressed recently by Krugman (1991) and Matsuyama (1991, 1992), is that agents face fixed costs in shifting between "social" and "antisocial" behaviors (such as switching from domestic currency transactions to black market transactions). Because of these costs of adjustment agents take decisions at discrete intervals rather than continuously, and they know that their decisions today will bind them for a discrete period into the future. Moreover, the timing of decisions by individual agents tends to be staggered, so that only a small proportion of the population is shifting between policy regimes at any time. The implication, as Krugman puts it, is that history and expectations together determine whether the good or bad equilibrium emerges over time.

Both Krugman and Matsuyama, using somewhat different approaches, arrive at a key insight. If we let $0 \leq \theta \leq 1$ be a parameter that measures the proportion of the population pursuing the antisocial behavior (flight from the currency, tax evasion), then θ must evolve gradually over time. If θ starts near zero, with most people pursuing the socially desirable strategy, θ will remain close to zero at least for a while, since most people will stick with their earlier behavior at least for a while. As a result, when an individual agent next chooses whether to pursue the social or the antisocial behavior, the historically determined level of θ matters, since it gives an indication of the likely social circumstances in the near future during which the individual's decision will apply.

Consider the case of money demand. If most firms are using rubles (because of past trends in the society), an enterprise making its money-demand decision between rubles and dollars knows that most firms are likely to be using rubles in the near future as well. Thus there is less chance that the equilibrium with complete flight from the currency ($\theta = 1$) will eventually emerge. The firm making its decision now will therefore also have the tendency to demand rubles rather than switch to black market dollars. As a result θ will tend to converge toward zero. But if most firms have already fled from rubles to dollars (θ close to 1), the enterprise will expect the bad steady-state equilibrium in the future ($\theta = 1$) and will flee from rubles as well.

A particularly nice mathematical and substantive result emerges that can apply to any of the versions of the contagion model that we have examined. There are, typically, three intervals for θ that determine the future equilibrium of the society. If

recent history has resulted in a low value of θ in the interval $0 \leq \theta < \underline{\theta}$ for some particular threshold level $\underline{\theta}$, each new decisionmaker will choose the socially desirable behavior and θ will eventually evolve to 0. Society will reach the good equilibrium. If history has resulted in a high value of θ in the interval $\bar{\theta} < \theta \leq 1$ for a particular threshold value $\bar{\theta}$, each new decisionmaker will choose the antisocial behavior and society will reach the bad equilibrium. The most interesting case is that in which θ lies in an intermediate interval $\underline{\theta} \leq \theta \leq \bar{\theta}$. In that case, an agent can rationally have either pessimistic expectations (that society will evolve to the bad outcome of $\theta = 1$) or optimistic expectations (that society will eventually evolve to the good outcome of $\theta = 0$).

These three intervals also define three zones of political life. In most industrial countries at most times in recent years, societies operate with θ close to zero. Most people are law abiding, and there are no rational fears of social collapse. There is every reason to believe that even if society is jolted by political or natural disasters, it will evolve again toward the good equilibrium. We might therefore call this first interval the range of "normal politics." In a few disastrous cases, such as Bosnia or Somalia, society has reached a war of all against all. In schematic terms, θ is close to 1. In this circumstance, even if there is a short period of good news, it is rational to be pessimistic: to abjure social behavior on the grounds that all other decisionmakers are likely to do the same. We might call this interval the range of "social collapse."

Russia and other countries in fundamental economic and political transitions find themselves in a third, indeterminate zone, when either a successful or unsuccessful outcome is possible, and rational agents can subscribe to optimistic or pessimistic forecasts. This zone might be called the "interval of political leadership," because political leadership can prove decisive to the outcome.

It is the crucial role of a leader to align society's expectations toward the favorable outcome. It was no mere wordplay when Franklin Roosevelt declared, in the depths of the Great Depression, that the only thing we have to fear is fear itself. Garry Wills has put it perceptively: "[Roosevelt] understood the importance of psychology—that people have to have the courage to keep seeking a cure, no matter what the cure is. America had lost its will to recover, and Roosevelt was certain that regaining it was the first order of business" (1994, p. 76). It is no accident that almost all stabilization programs are identified with particular leaders: Hamilton in the United States (1790), Shacht in Germany (1923), Grabski in Poland (1924), Erhard in Germany (1948), Sanchez de Losada in Bolivia (1985), Balcerowicz in Poland (1990), and so on. This identification is a tribute not only to their technical contributions, but also to the fact that they prodded their compatriots to see the possibility of the "favorable" equilibrium in circumstances clouded by doubt and pessimism.

The Role of External Assistance

The early provision of external aid often is crucial in boosting confidence in a stabilization program. Standard monetary theory gives a clear but limited role to foreign financing during monetary stabilization. Foreign financing allows a government

to cover part of the budget deficit without recourse to increases in the money supply, thereby slowing inflation during the period of foreign assistance. In the typical view, which has considerable merit in many historical circumstances, the temporary external help must be accompanied by aggressive budget cutting or else inflation will simply reappear when the external help is withdrawn. Indeed, inflation can come back even more virulently than before the aid, since now the government must cover the repayment of loans as well as the original deficit.

But in a situation of multiple equilibriums, foreign finance can be much more important and its influence more enduring. Not only does the foreign finance give the government breathing room to undertake budget cutting, but it can also shift the whole economy from the bad equilibrium to the good equilibrium by ruling out the possibility of the self-fulfilling contagion. In the examples of social collapse, the possibility of the bad outcome depends implicitly or explicitly on the financial fragility of the government. If the government has financial wealth in reserve—enough to guarantee the stability of the currency, or the provision of public goods, or the enforcement of law, or the punishment of tax-evading regions—only the good equilibrium can occur. In general, this financial reserve can be achieved through fundamental fiscal reform or a line of credit from outside. Reform may be absolutely necessary in the long run but impractical in the short run if the economy is already careering toward the bad equilibrium.⁹

Consider the problem of flight from the currency. Suppose that the government has an international line of credit (a stabilization fund) for sustaining a pegged exchange rate. The government won't actually have to draw on the line of credit to defeat speculation against the currency and rule out the bad equilibrium. The mere availability of the credit line will ensure that it doesn't have to be used. Bruno and Fischer (1990) stress the similar importance of a nominal anchor in ruling out a self-fulfilling collapse of the currency. Obstfeld (1994) considers the case in which a large stock of foreign exchange reserves eliminates the possibility of a self-fulfilling attack on the currency.

In an analysis of comparative disinflation experiences Bruno marshaled the historical evidence of the 1980s and early 1990s in favor of an early exchange rate peg. He stresses the role of the exchange rate peg as a signal of the government's anti-inflationary intentions:

There are a variety of reasons for targeting the exchange rate rather than a monetary aggregate at the initial stabilization stage—the instability of the demand for money, the frequency of observation of the exchange rate as a proxy for the price index (on a daily basis), and the more widely and intuitively understood signal of the stability of a key price level (in relation to wages, for external competitiveness considerations, etc.)....While monetary targeting with an exchange-rate float has been a plausible policy alternative in stabilization from low or moderate inflations (especially when the safety cushion of exchange reserves does not exist—as in Romania and Bulgaria), this has hardly ever been the case from high or hyperinflations. (1993, p. 270)

It is of course the international community that can determine whether a safety cushion of exchange reserves is in fact available, by providing the country with reserves at the outset of stabilization. Dornbusch recounts powerful historical evidence of stabilization episodes of the mid-1920s in favor of early currency stabilization backed by international reserves. Currency stabilization typically preceded budget balancing:

Stabilization requires three steps: fixing the exchange rate, balancing the budget, and ensuring the independence of the central bank. Each of these three steps is indispensable. Fixing the exchange rate establishes immediately a stabilizing force and inertia with beneficial effects for expectations, the budget, and politics. Balancing the budget provides the fundamentals that warrant fixing the exchange rate. Finally, the independence of the central bank acts as an insurance against relapse and thus helps improve expectations.

All three conditions might not be achievable at the outset. Specifically, budget balancing may not be immediately possible or convenient, at least not fully. The answer then is for it to be financed not by money but by debt—domestic or external—with a clear limitation on the deficits. Still, exchange rate fixing and the creation of central bank independence can go ahead. (1992, p. 418)

The role of a foreign line of credit in securing confidence in the course of monetary stabilization has been demonstrated repeatedly. A vivid example came at the end of the German hyperinflation in 1923, as described by Hjalmar Schacht (1956) in his memoirs. Schacht became Commissioner for National Currency on November 12, 1923, and eight days later, when the hapless Rudolf Havenstein, President of the Reichsbank, died, Schacht took his place. Schacht quickly engineered a sharp tightening of credit for a few weeks. This early performance commended him warmly to Montagu Norman, Chairman of the Bank of England, who quickly agreed to a crucial £100 million loan to the Reichsbank. A few days later this loan helped Schacht head off a powerful separatist movement in the Rhineland, which was striving to create a separate Rhenish Central Bank with the support of French financial interests. Since Schacht could demonstrate to Chancellor Marx that he had already mobilized £100 million from abroad, and with the promise to raise more, he was given time to carry out his own strategy and to consolidate the stabilization effort. Several months later the Dawes loan of 1924 provided further backing for the new currency.

One can find many other examples of international lines of credit that played a vital role in the early stages of stabilization by bolstering confidence and pointing the public in the direction of the good equilibrium. The stabilizations of high inflation in Central Europe in the interwar period were supported by loans from the League of Nations. Most famously, the mere announcement of the Marshall Plan gave a crucial boost to moderate governments under profound stress from economic

crisis. Marshall's speech, remarked U.K. Foreign Minister Bevin, was "like a lifeline to a sinking man. It seemed to bring hope where there was none" (quoted in Isaacson and Thomas 1986, p. 413). More recent cases include a U.S. bridge loan to Mexico in late 1988, which bolstered confidence in the Mexican government after a tumultuous and contested presidential election, and a \$1.5 billion stabilization fund for Israel at the start of the 1985 anti-inflation program, which bolstered public confidence and helped the government hold the course in the face of labor and budgetary pressures. The \$1 billion Polish stabilization fund, provided by the G-7 countries at the end of 1989, was crucial in convincing the government's own team of the feasibility of quick currency convertibility. Britain's and Sweden's return of prewar gold to Estonia in mid-1992 was critical in backing Estonia's new currency; this early stability gave momentum to more fundamental economic reforms in the summer of 1992.

There are, alas, as many examples of missed opportunities because of lack of confidence, though these are often harder to spot. When a stabilization program collapses, there are always more than enough culprits. Since the pessimistic equilibrium is itself rational, no search party sets out to find the missing ingredient to stabilization. And yet, occasionally, bitter reproaches can be heard. When the Polish currency stabilization collapsed in 1925, leading the way to dictatorship, Vice President Feliks Mlynarski of the Polish National Bank detailed in a stinging rebuke to the international community how its failure to provide even a small amount of support to tide the country over an unfavorable harvest precipitated the collapse:

The stabilization of the currency in Poland—strange as it may seem—in July 1925 broke down because of a lack of 15 million dollars. It happened at the time when the question of international cooperation with a view to stabilizing the European currencies was the subject of lively discussion. What were the results of it? Firstly, in order to restore the lost confidence of the public reminiscent of paper money inflation, a considerably greater sum than 15 million dollars was later necessary. (1926, p. 62)

Monetary Conditions in Russia

We are now ready to apply these insights to Russia's struggle for stabilization, using a formal framework to analyze four phases of stabilization since the start of 1992.

A Formal Framework for Monetary Stabilization

A government budget deficit g may be financed in three ways: with domestic bonds b , foreign loans f , or central bank credit to the government cg . Note that b , f , and cg are *flows*, all measured, as is g , as a percentage of GDP. Since $g = b + f + cg$, we can write:

$$(1) \quad cg = g - f - b.$$

In addition to making loans to the government, the Russian central bank extends credits cb to commercial banks and credits cc to other countries in the Commonwealth of Independent States (CIS). The flow of total credits from the central bank, measured as a percentage of GDP, is given by:

$$(2) \quad c = cg + cb + cc.$$

If central bank interventions in the foreign exchange market are ignored, the change in the monetary base \dot{M} as a percentage of GDP is equal to c , so $\dot{M}/\text{GDP} = cg + cb + cc$. Using equation 1 and defining GDP as equal to price level P multiplied by real GDP Q yields:

$$(3) \quad \dot{M}/PQ = (g - b - f) + cb + cc.$$

We define monetary velocity as:

$$(4) \quad V = PQ/M.$$

Real money balances are $m = M/P$, and inflation is $\pi = \dot{P}/P$; Q is assumed constant.

Using these definitions together with equations 3 and 4 and following some simple calculations, we can write a canonical equation for inflation:

$$(5) \quad \pi = V(g - b - f + cb + cc) + \dot{V}/V.$$

This is our key analytical equation. It is also the underpinning of IMF financial programming exercises. According to equation 5, inflation is the result of several factors:

- *Central bank credit expansion*, which is equal to credit to the government $(g - b - f)$ plus credit to the commercial banks and the other CIS members $(cb + cc)$.
- *Monetary velocity*, V , with higher velocity (caused by prior flight from the currency) causing higher inflation for any given level of central bank credit expansion.
- *Continuing flight from the currency* (\dot{V}/V) , which can cause inflation even in the absence of new central bank credits.

The earlier discussion of multiple equilibriums can be rephrased in terms of equation 5. First, the budget deficit $g - b - f$ may itself be a function of optimistic or pessimistic expectations, since an economy may be hit by a contagion of tax evasion, regional separatism, or pessimism of government bond holders (which leads to higher nominal interest rates on government debt service in anticipation of future inflation). Thus, even if the inflation is of a traditional variety—caused by the monetization of a large budget deficit—the size of the deficit can reflect the balance of expectations about the prospects for reform.

Second, the velocity of money is also a function of expectations. Both a high value of V and a rising value of V (that is, $\dot{V}/V > 0$) can result from self-fulfilling fears of

future inflation, leading to a flight from the domestic currency. Both a high value of V and a rising value of V provoke a rise in inflation for any given positive level of domestic credit expansion. Indeed, as we shall see, the flight from the ruble ($\dot{V}/V > 0$) seems to have played an important part in Russia's inflation dynamics since 1991.

Third, foreign financing of the budget deficit can directly reduce inflation by reducing the amount of the budget deficit that must be monetized by the central bank. Specifically, a rise in f reduces $g - b - f$ and thereby reduces inflation, assuming that foreign borrowing does not raise expected future inflation (in which case the anti-inflationary effect of the rise in f can be offset by a simultaneous rise in V).

Sources of Russian Inflation, 1992-94

Russia's continued high inflation between 1992 and 1994 has deep structural roots, but it also reflects serious policy misjudgments by the Russian government and the West. Many people believe that the high inflation has been inevitable. Some say that the Russian political situation was too unstable to permit faster and bigger cuts in budgetary spending. Others say that the rigidities of Russian state enterprises, especially the loss-makers, led inexorably to large-scale industrial subsidies as a form of hidden social policy. Still others say that stabilization could not precede privatization and other structural reforms. All of these views overstate the difficulties and costs of stabilization and misconstrue the reasons why stabilization failed during 1992-94.

To clarify the role of the budget deficit in Russia's high inflation and to distinguish it from that of other factors, I compare Russia's case with that of three other countries with high budget deficits but low inflation, Greece, Italy, and Portugal (table 1).¹⁰ Russia stands out in all three dimensions of high inflation: high domestic credit

Table 1. *Factors in Inflation in Russia and Selected Countries, 1993*

Country	Budget deficit (percentage of GDP)	Domestic credit (percentage of GDP)			M2 velocity (monthly)		Inflation (monthly)
		Total	Budget	Other	Rate	Percentage change	
Russia	10	11.1	4.6	6.5	1.1	8.0	20.7
Greece	13	-1.6	1.2	-2.8	0.6	0.4	1.0
Italy	9	-1.6	-1.1	-0.5	0.7	1.2	0.4
Portugal	8	1.9	-0.2	2.1	0.4	-0.2	0.5

Note: Velocity is measured as monthly GDP divided by high-powered money (line 14 in the IMF *International Finance Statistics*, or *IFS*) for the corresponding month, averaged for the year. For Greece, Italy, and Portugal monthly GDP is interpolated using annual GDP and monthly prices. Change in velocity is calculated as the monthly proportional change in velocity, averaged for 1993. Credit figures are calculated as the monthly flow of central bank credit divided by nominal GDP, averaged for the year. Inflation is the monthly rate, averaged for 1993. The budget deficit is for the general government. For Greece, credit to the budget is defined as line 12a minus line 12ab of the *IFS*.

Source: All credit data are from the IMF (line 12 and subcomponents of the *IFS*), except for Russia, which are from *Russian Economic Trends*, various issues. Budget deficits are from *Russian Economic Trends* for Russia and from the OECD for Greece, Italy, and Portugal.

($cg + cb + cc$), high velocity V , and a rising velocity of V (\dot{V}/V) averaging 8 percent a month. But Russia does not stand out in size of the budget deficit as a percentage of GDP. Russia financed a significant proportion of its budget deficit with central bank credit and arrears,¹¹ whereas the other three countries have financed most of their deficits by nonmonetary means (domestic and foreign loans). There has been almost no foreign financing of the Russian budget deficit (see appendix).

The IMF has conveyed the impression in the West that Russia's budget deficits were extraordinarily large in 1992 and 1993 and that these deficits lay behind the IMF's reticence to provide large-scale financial assistance. This misunderstanding arose from the IMF's introduction of the concept of an "enlarged deficit," which was calculated as the sum of the actual budget deficit plus imports financed by official Western export credit agencies (U.S. Eximbank, Hermes, and so on). This enlarged deficit was measured at about 20 percent of GDP in 1992, equal to an actual budget deficit of 7 percent of GDP plus import subsidies of 13 percent of GDP.

It is important to understand the flaws in the export credit policy of the West during 1992 and 1993. In essence, Western governments gave credits to Russian enterprises to import goods, and the Russian government assumed the burden of repaying these credits. Thus the enterprises received the imported goods virtually for free, while the Russian government took on the obligation of repaying the loans. This kind of aid led to enormous waste and corruption as enterprises struggled to receive imports from the West, whether they were of use in Russia or not. The credits obviously did not finance the actual budget deficit but were a direct transfer to Russian enterprises (and bureaucrats and local governments) that were able to get their hands on the imports through corruption or sheer luck. While the aid did not directly increase the money supply (the "subsidy" to the enterprise was entirely foreign financed), it will add pressures for monetization as the credits fall due (\$3–4 billion worth in 1994).

The great analytical mistake is to believe that the inflationary factors in Russia were inevitable features of the economic scene in 1992–94. Consider the sources of credit expansion in more detail: credit to the budget, credit to commercial banks (mainly for the state enterprises), and credit to other CIS members (table 2). Credit policy during January 1992 to June 1994 falls into four periods. From January to March 1992, in the immediate aftermath of price liberalization, there was no monetization of the deficit. April to December 1992 was a period of highly inflationary policies by the Russian Central Bank, followed in January to September 1993 by progressive tightening of monetary policies. October 1993 to May 1994 was a period of further credit tightening, reflecting stronger government control over macroeconomic policy in the aftermath of President Yeltsin's showdown with the Russian Supreme Soviet in September 1993 and adoption of the Russian Constitution in the referendum of December 1993.¹²

The first source of credit expansion was the budget deficit. No monetization occurred in the first period. In the next three periods credit to the budget amounted to 17 percent, 4 percent, and 7 percent of GDP. Greater domestic and foreign financing of the deficit in place of central bank financing could have diminished this

Table 2. Domestic Credit Expansion, Money Growth, Velocity, and Inflation, 1992-94
(percent)

Indicator	January- March 1992	April- December 1992	January- September 1993	October 1993- May 1994
Total central bank credit (percentage of GDP)	7	42	12	8
Budget	-8	17	4	7
Banks	12	18	6	1
CIS	3	7	6	1
M2 velocity	4.6	4.6	7.2	9.4
Change in M2 velocity	10	-1	8	4
M2 growth (monthly)	13	21	16	11
Inflation (monthly)	34	18	22	13

Note: Credit expansion is the monthly increase in central bank credit, as a percentage of monthly GDP, averaged over the period. The other estimates are monthly values averaged over the period. Inflation is measured with the consumer price index.

Source: Russian Economic Trends.

source of credit expansion. It is also likely that the delay in implementing a real stabilization program exacerbated the budget deficit by encouraging tax evasion, leading to a drop in tax collections.

The second main source of credit expansion during 1992-94 was domestic credit to state enterprises through central bank credits to commercial banks. Credits to commercial banks reached a remarkable 18 percent of GDP during May-December 1992, the period of the most extreme inflationary finance by the central bank. During this period Central Bank Chairman Viktor Geraschenko repeatedly declared the bank's intention to increase the money supply to bolster industrial production. Central bank credits to commercial banks were moderately restricted during January-September 1993 and then severely restricted during October 1993-May 1994.

Most commentators have argued that the large flow of domestic credits to state enterprises reflected a painful tradeoff. Greater credit tightening to reduce inflation, they argued, would have led to a much sharper fall in industrial production and a much faster rise in unemployment. It is alleged, therefore, that continued high inflation was largely a reflection of the underlying structural conditions facing industry.

This argument is much weaker than it appears. It is now well understood that the production decline is structural—enterprises have been producing outputs for which there was no demand in the marketplace—rather than the result of financial policy. The decline in industrial production has occurred throughout the ex-communist region, largely independent of the type of monetary policy being pursued. If anything, it appears that the production decline has been less severe in countries pursuing tough monetary policies, such as Poland. Further, enterprises were losing in inflation much or all of what they received in cheap credits, since the enterprises are the main holders of ruble bank deposits and, therefore, the main bearers of the inflation tax. The net production or employment benefit of the subsidies was minus-

culé—and even smaller considering that the net credit flows actually financed capital flight of many state enterprises rather than any productive activity.

To a great extent the gross credit expansion to the enterprise sector was actually a consequence of inflation rather than a primary source of inflation. Money-financed budget deficits and transfers to the CIS were fueling inflation, imposing an inflation tax on the enterprise sector, which held the bulk of the bank deposits in Russia. The Russian government and central bank made special subsidized loans to help enterprises replenish their depleted real money holdings. The idea was to insulate the enterprises from the inflation tax, thereby shifting more of the inflation tax to the household sector. If the primary sources of inflation (money financing of the budget deficit and credits to other CIS members) could have been reduced, credits to the enterprise sector could have been reduced as well, since enterprises would have needed less compensation for the losses on their money holdings.¹³

It is difficult to estimate the exogenous flow of credits to enterprises and the “endogenous” flow in response to inflation. Since the net transfer to enterprises—banking credits minus inflation taxation—was perhaps 3 percent of GDP (Sachs 1994c) and may even have been negative (Easterly and Vieira da Cunha 1994, table 5), I use 3 percent as a rough indicator of the level of net credits that would have been extended in the absence of inflation. Note that a related motivation for the large extension of credits to the enterprises in the summer of 1992 was the development of extensive interenterprise arrears. Rostowski (1993, 1994) and Sachs and Lipton (1993) argue that these arrears should have been addressed through reforms of the payments mechanism and strict market discipline on nonpaying enterprises rather than through an expansion of credit.

The third source of credit expansion was central bank credits to the CIS members, which reached about 7 percent of GDP in the second half of 1992, before falling to 3 percent during January–September 1993 and then to zero during October 1993–June 1994. Again, this credit reflects a basic mistake of monetary policy during 1992–93: the delay in introducing separate national currencies. The Russian Central Bank provided virtually automatic monetary credits to states that remained with the ruble and cut off credits only when those states adopted national currencies. CIS credits finally stopped flowing at the end of 1993, when all the CIS members had adopted their own currencies. (Some interstate credit flows remained, in the form of delayed payments for Russian energy shipments to other former republics, but these credits did not have a direct effect on the money supply.) If the CIS members had adopted separate currencies in the first part of 1992, as strongly urged by Havrylyshyn and Williamson (1991), Sachs and Lipton (1993), and others, it is likely that the credits to the other republics would have been decisively reduced, to perhaps 1 percent of GDP by October–May 1994. Unfortunately, the IMF advised against the early introduction of national currencies.

So while Russian credit expansion was very high during 1992 and 1993, most of the expansion resulted from poor monetary and fiscal policies—especially the lack of national currencies and the absence of nonmonetary financing of the budget deficit—and from inflation itself. Perhaps the pressures for inflationary finance were

on the order of 11 to 12 percent of GDP: 8 percent of GDP for the budget, 3 percent in net transfers for enterprises, and 1 percent for the other ex-republics. While this was a large amount of monetary financing, it was not necessarily an explosive amount. It could have been much lower had some or all of the credit needs been covered by international financing rather than domestic credit expansion. Loans of some \$10–20 billion during 1992 could have substituted for almost all of the inflationary finance of the budget deficit.¹⁴

Was Early Stabilization Politically Feasible?

It is also conventional to argue that political conditions in Russia precluded stabilization in 1992 and 1993. The situation was too unstable and complex. Key economic policymakers lacked the necessary authority. Society was too divided. In my view, these characterizations are unconvincing. Instability, complexity, divided authority, and society in turmoil always characterize an economic crisis. Far from stopping stabilization, these conditions often make it possible for a small group of policymakers, backed by international support, to begin stabilization. The question is rather one of sustainability: the chief tactic is to use early successes to bolster later political authority in support of more fundamental reforms.

Did the early political conditions preclude stabilization? Almost surely not. President Yeltsin had enormous political power at the start of the reforms. He was by far the most popular politician in the country, and he was operating under a one-year grant of emergency power that enabled him to govern by decree (*Russian Economic Trends* 1992). The economic reforms, led by Deputy Prime Minister Yegor Gaidar, had considerable institutional reach. Gaidar was simultaneously minister of economy and of finance, though he was to relinquish these positions later in the year to subordinates. He had key reform personnel installed at the top of these and other influential ministries.

Social conditions also were adequate for stabilization. There were no riots or major acts of civil disobedience in the first months of economic reform. There were no general strikes and only sporadic work stoppages of any sort. The public was demoralized, to be sure, but not aggressively in opposition to the reforms and certainly not politically mobilized to stop them.

The major weaknesses came in the conception and execution of reform measures rather than in political or social opposition. No overall stabilization program was put in place, with quantified and monitored macroeconomic targets. There was no strategy for dealing with the Soviet ruble and no strategy for exchange rate management, except to let the ruble float in the new interbank currency markets. There was no strategy of Western assistance, especially to help finance the Russian budget deficit or even to postpone debt payments on old Soviet debts in a clear and consistent manner.

The Costs of Delayed Stabilization

By 1991 the Soviet people had already lost faith in the ruble. Money financing of the budget deficit was enormous (exceeding 10 percent of GDP in 1991). Nominal

interest rates on ruble deposits were derisory—less than 10 percent a year when open inflation was accelerating to more than 10 percent a month in the final months of 1991—and repressed inflation (as measured by price movements on the black market) was approaching hyperinflationary rates. Perhaps most startlingly, the authorities displayed a brazen disregard for public confidence in the currency, illustrated by the confiscation of 50- and 100-ruble notes in early 1991, a measure ostensibly taken against “illegal” monetary circulation.

When prices were decontrolled in January 1992, the release of the monetary overhang and the lack of confidence in the currency caused a sharp acceleration in monetary velocity. M2 velocity (monthly GDP divided by M2) rose steadily, doubling from 0.38 in January–March 1992 to 0.79 in October 1993–May 1994.¹⁵ Velocity in terms of high-powered money actually declined between January and August 1992 but rose steadily thereafter. According to equation 5, the rise in velocity has two inflationary effects: the direct effect on prices (through $\dot{V}/V > 0$) for a given level of domestic credit expansion and the indirect effect of translating any given level of credit expansion into inflation (the level effect of V).

Standard models of inflation dynamics beginning with Cagan's 1956 classic analysis treat the level of velocity solely as a function of contemporaneous expectations about the prevailing inflation rate, reflecting the assumption that moneyholders make decisions continuously about the level of money balances that they want to hold. But just as I argued earlier that it is more realistic to assume that decisions over holding money are likely to be made at discrete and staggered intervals by individual enterprises, so too current velocity is likely to reflect not only contemporaneous expectations of inflation but also past expectations about current inflation and current expectations about future inflation (which may partly prove to be self-fulfilling).

These considerations suggest that the rise in velocity in Russia since 1991 is a consequence not only of the reaction of moneyholders to actual inflation but also of shifts in expected future inflation, which may in part have been self-fulfilling. Moreover, the rise in velocity will take time to reverse, even if macroeconomic policies are credible and stabilizing in the future, since it will take time for enterprises and households to reestablish money demand patterns consistent with low inflation. In the summer of 1994, for example, inflation had been reduced to 5 percent a month, and yet monetary velocity was significantly higher than it had been twelve months before.

It is clear that Russia's stabilization program has lacked widespread credibility, even at times when monetary and fiscal policy were relatively restrictive. As of mid-1994, for example, nominal interest rates had fallen much less than inflation, which had dropped sharply. Real interest rates (the nominal interest rate minus the contemporaneous inflation rate) were extremely high throughout the period until October 1994. In the summer months inflation was about 6 percent a month, while nominal interest rates on interbank loans were 15 to 18 percent a month—suggestive of Calvo's incredible stabilization. As the Russian monetary authorities persisted with tight credit during 1994, the high real interest rates led to a rapid and crippling build-up of bad debts in enterprises and banks and of the government debt burden

on internal debt. This build-up was one of the factors in the reversal of tight monetary policies in mid-1994.

While lack of confidence in the currency has led to a sharp rise in monetary velocity, the Russian budget has also been plagued by a steady drop in tax revenues as a percentage of GDP, partly as a result of the contagion of criminality and tax evasion discussed earlier. Consolidated tax revenues (central and regional governments) plunged from 33 percent of GDP in 1992 to 20 percent of GDP in the first quarter of 1994 (*Russian Economic Trends* 1994). Tax revenues for 1994 were far below budgetary projections of 29 percent of GDP made at the start of the year. Just as it will take time to reconstruct confidence in the Russian currency, it will take time to reconstruct a system of tax compliance. The weakening of compliance is probably another cost of delayed stabilization during 1992-94.

Some hints of a gradual undermining of fiscal federal arrangements are beginning to emerge. While only a few regions of Russia (Tatarstan, for one) have opted out of the federal tax system altogether and have negotiated separate arrangements, the central government has been pressed by the regions to cede an increasing proportion of tax collections to provincial and local governments. In 1992 the central government kept 63.5 percent of all revenues (leaving 36.5 percent for the regions), while in the first quarter of 1994 it kept just 41.0 percent of the revenues (*Russian Economic Trends* 1994). While this trend is healthy in terms of moving government authority closer to the voters, it has apparently not been matched by a commensurate transfer of expenditure responsibilities. The central government accounted for 61.4 percent of total expenditures in 1992 and 59.6 percent in the first quarter of 1994.

Toward a Credible Stabilization Program

Successful stabilization in Russia will require four actions.

- A clear fiscal program (including fiscal federal arrangements) to keep the budget deficit within reasonable limits.
- Adequate domestic bond financing and foreign financing so that the budget deficit can be financed without excessive reliance on central bank credit.
- Restrictive credit policy toward the enterprises and the CIS members, so that central bank credit expansion is held to a reasonable level.
- Adequate clarity of policy and institutional reform, in order to raise the credibility of stabilization and the confidence in the ruble and to keep monetary velocity low and the change in velocity near zero (to avoid a flight from the currency).

A stabilization strategy directed at these considerations should look something like this. Budgetary policy should be restrictive but realistic. The goal should be to reduce the consolidated budget deficit from around 10 percent of GDP to perhaps 5 percent of GDP in the next three to four years. Improved tax collection through an overhaul of the tax system—aimed at a simplified tax structure with broad-based taxes and low marginal tax rates—is a vital step. Western financing of part of the deficit should be made an explicit medium-term commitment and tightly integrated into Russia's own

medium-term financial plans.¹⁶ A reasonable target for foreign financing of the budget would be around 3 percent of GDP (\$10 billion in mid-1994), tapering off to just 1 percent of GDP in three years. This foreign financing could be carried out through a combination of IMF and World Bank loans and donor government purchases of Russian government treasury bonds denominated in international currencies.¹⁷

Domestic bond financing would also be increased to at least 2 percent of GDP and probably to 3 to 4 percent of GDP within a couple of years. Currently, domestic bond financing is hampered by a lack of credibility and the absence of foreign cofinancing. With a consistent medium-term stabilization program, backed as well by foreign inflows, domestic bond borrowing would become considerably easier. To overcome the risks of building self-fulfilling inflationary expectations into nominal interest rates—thereby forcing the government to pursue an inflationary policy to service the high nominal interest rates—the domestic bond borrowing might be undertaken, at least in part, in dollars or indexed bonds.

Credit to enterprises and to the other CIS members has already been tightened in 1994, without disastrous consequence. Of course, as the enterprises lose access to subsidized credits, they must have access to foreign capital and reasonably priced domestic loans. The high cost of borrowing facing enterprises in 1994 is one of the costs of incredible stabilization. Real interest rates would fall if a more credible stabilization strategy were to take hold.

The greatest change in strategy should come in institutional measures to augment credibility. Recent stabilization programs around the world—in Bolivia in 1985, Israel in 1985, Mexico in 1987, Poland in 1990, Argentina in 1991, Estonia in 1992, and Brazil in 1994—have demonstrated that central bank independence and early pegging of the exchange rate are two of the most important methods of building expectations of low inflation and thereby of lowering V and \dot{V}/V in support of the stabilization program. We have seen that a pegged exchange rate can be an important nominal anchor in bolstering the low-inflation equilibrium in an environment with multiple equilibriums.

Conclusion

Russia is in a deep state of crisis that could send the country into a spiral of self-reinforcing destructive behaviors: criminality, regional separatism, tax evasion, and flight from the currency. To overcome these risks, the government should embark on a policy of rapid stabilization, backstopped by substantial Western assistance. This is a feasible course. Sadly, the Western aid effort has fallen far short of real need—in speed, direction, and magnitude.

The concerns raised in this article apply not only to Russia. The current methods of delivering aid are typically too slow for weak states in acute financial crisis and too oblivious of the risks of a "contagion" of state collapse. Exceptions occur, usually when one of the leading nations takes on the effort of support mostly by itself (the U.S. support of Mexican stabilization, for example). More than half the countries of the former Soviet Union were in hyperinflation in 1993; none received the

kind of financial support, or even advice, from the international community that was needed under the circumstances. Throughout the world weak, newly democratic states are grappling with an inheritance of high indebtedness and failing public institutions. These countries can overcome their bitter inheritance, but only if the world community responds with urgency and support.

Appendix. International Assistance to Russia, 1993-94

Western aid to Russia has failed to support budget financing or currency stabilization. The bulk of the \$23 billion in Western financial aid to Russia during 1992 and 1993 was in the form of export credits, of the wasteful sort discussed in the text (appendix table A1). Some \$2 billion was in the form of grants from other governments, including outlays for technical assistance, and \$3 billion was from international financial institutions.

Perhaps \$2.5 billion of total assistance can be considered budgetary financing: \$1.0 billion from the IMF, \$0.5 billion from the World Bank, and about \$1.0 billion of grant support. The rest of the IMF money was not available for budgetary support since it was programmed to be held as foreign exchange reserves. Most of the remaining grant money did not provide budgetary financing, since it was paid directly to Western consulting firms or provided in the form of foodstuffs and medicine delivered to various end users without raising counterpart funds for the central government.

The West also provided some measure of debt relief, but in a remarkably desultory and disorganized manner. In November 1991 the G-7 countries insisted that Russia and the other republics adopt a memorandum of understanding committing

Table A.1. Official Financial Assistance to Russia, 1992-93
(billions of U.S. dollars)

Assistance	1992		1993		1992-93	
	Announced	Delivered	Announced	Delivered	Announced	Delivered
IMF	9.0	1.0	13.0	1.5	14.0	2.5
World Bank and EBRD	1.5	0	5.0	0.5	5.0	0.5
Bilateral ^a	13.5	14.0	10.0	6.0	21.0	20.0
Export credits		12.5		5.5		18.0
Grants		1.5		0.5		2.0
Total	24.0	15.0	28.0	8.0	40.0	23.0
<i>Memorandum items</i>						
Aid from inter- national agencies	10.5	1.0	18.0	2.0	19.0	3.0
Budgetary support ^b		0.5		2.0		2.5

a. Includes \$2.5 billion of promised relief on interest payments that was not formally granted in 1992.

b. Estimate of aid directly in support of budgetary financing, not counting debt rescheduling (see text).

Source: Based on IMF press release, February 1, 1994, with author's estimates of "budgetary support."

them to two unrealistic and unworkable policies: continued servicing of interest and short-term debt and "joint and several" responsibility for the Soviet Union's foreign debt. The Russian government lacked the reserves to continue debt servicing past January 1992 and fell into default on its foreign debt. Debt rescheduling negotiations dragged on for more than a year in the Paris Club, until agreement was finally reached in June 1993, eighteen months after the onset of default. Negotiations with commercial bank creditors and various suppliers extended into 1994 without resolution. In the interim, Russia was subjected to various harassing lawsuits and continued in legal limbo. The "joint and several" clause also proved to be politically and legally untenable. After a year of internal wrangling, it was replaced by a "zero option," whereby Russia took over all Soviet debts and foreign assets.

The final component of the financial aid package was the long-discussed ruble stabilization fund. The IMF maintained unwaveringly throughout 1992 and 1993 that such a fund should be implemented only after Russia achieved several months of low inflation!

It is sobering to compare the treatment Russia received and the treatment received by Macy's Department Stores, which by coincidence filed for Chapter 11 relief in January 1992, the same month that Russia fell into default on its obligations. By law, Macy's was afforded a complete and automatic standstill on debt servicing on the day of its filing. Two weeks later Macy's obtained a \$600 million debtor-in-possession loan to secure working capital for continued operations. It took Russia eighteen months to receive a partial standstill on debt servicing (though Russia was in default during the intervening period) and roughly the same period of time to receive actual disbursements on a \$600 million working capital loan from the World Bank.

Notes

1. While this article focuses mainly on stabilization, "shock therapy" has come to mean the combination of rapid stabilization, liberalization, and privatization. In fact, as stressed in Sachs (1990, 1993, 1994a) and Lipton and Sachs (1990), all of these components are mutually reinforcing.

2. On the other hand, the war in Chechnya at the end of 1994 points to grave risks in the nascent democratic institutions.

3. The \$50 billion aid package to Mexico in January 1995 was argued for along similar lines.

4. Formally, we treat the production of an individual firm as an increasing function of the level of the public good provided by the state. Production by firm i is given as $q_i = q + ag$ for tax-paying firms and $q_i = q$ for tax-evading firms. We also suppose that the level of public goods g is given by nt , where t is the level of taxation per firm and n is the number of firms paying taxes.

In these circumstances multiple equilibriums can easily arise. We assume that $1 < 1/a < N$. The firm's after-tax income is $q + ag - t$ if the firm pays its taxes and simply q if the firm evades its taxes. The firm's decision is straightforward. It should evade taxes as long as $t > ag = ant$, or as long as $n < 1/a$. If $n = 1$ (all other firms are evading taxes), then the N th firm should evade taxes as well, since $1 < 1/a$ by assumption. If $n = N$, then the N th firm should pay its taxes, since $N > 1/a$ by assumption. For related models of tax evasion with multiple equilibriums, see Pyle (1989) and Cowell (1990).

5. As in endnote 4, let g equal the level of the public good and assume that $g = nt$, where n is now the number of federal regions remitting their taxes and t is the (fixed) tax levy per region. Suppose that a noncompliant governor will be punished only if the federal government remains intact until the end of the fiscal year. If the federal president is toppled, then the tax-retaining regional governor escapes punishment. Let P be the probability of survival of the federal government and assume that P is a rising function of the level of the public good g that the Federal government provides:

$$P = ag \quad g < 1/a \\ = 1 \quad g > 1/a.$$

Since $g = nt$, we have

$$P = ant \quad n < 1/at \\ = 1 \quad n > 1/at$$

Suppose, further, that the regions receive the benefits of g whether they pay taxes or not. That would be the case, for example, for defense spending, federal pension benefits of retirees in the region, or federal unemployment compensation. Let c be the size of the penalty in case the region is in fact punished, with $c > t$. The regional governor's calculation is straightforward. The expected benefit of tax withholding is $t - Pc$. Then, for certain relative values of a , c , and t , it is easy to check that there are two equilibria: a "good" equilibrium in which every region pays taxes and a "bad" equilibrium in which every region withholds taxes and the federal government collapses.

6. Suppose that there is a sovereign debt burden D that is greater than the current capacity to repay. Formally, $D > q_0$. There are N possible new creditors that can each lend an amount f at interest rate r that can be used for profitable investment in the country. The marginal product of investment is $1 + \mu > 1 + r$. If there are n investors, total new investment is nf , and national income next period is:

$$q = q_0 + (\mu - r) nf.$$

Assume that if *all* potential investors invest, there will be enough national income to repay the existing debt:

$$q_0 + (\mu - r) Nf > d$$

On the other hand, if there is not enough investment to repay the old debts d , the output gets divided among the old creditors, and the new creditors get nothing.

These ingredients deliver the possibility of an investor panic. If $N-1$ investors make an investment, the N th investor can also safely invest. On the other hand, if $N-1$ investors fail to invest, the N th investor also will, since the returns on the N th investment would merely be divided among prior creditors. There must be a sufficiently "big push" among foreign investors to make it possible to overcome an existing overhang of debt. Alternatively, new potential investors must be given priority in repayment, as is standard in bankruptcy cases. See Sachs (1984) for an earlier treatment of creditor panic.

7. Indeed, for almost two years the World Bank resisted the granting of seniority to new oil-sector loans to Russia, to be arranged by the U.S. Eximbank, by refusing to waive the traditional "negative pledge clause" on World Bank loans to the Russian Government.

8. As in the case of Mexico in January 1995.

9. In Mexico in January 1995, international backstopping was needed to prevent a default by the Mexican Government in advance of any long-term policy changes.

10. We must stress that the monetary data for Russia are imprecise and have been revised repeatedly in the past two years. It is possible that they will be revised again when the Russian Central Bank finally undertakes a rigorous and serious overhaul of its statistical operations.

11. The data in table 1 almost surely understate the extent of credit financing of the deficit during 1992-94, since there was probably an especially large amount of financing through arrears at the end of 1993, when the largest part of the year's budget deficit is recorded. *Russian Economic Trends* (vol. 3, no. 1, p. 12) reports that 82 percent of the budgetary shortfall in the first quarter of 1994 was financed by central bank credit. It should be stressed, once again, that the budgetary and monetary data are somewhat murky with regard to timing, cash versus accrual accounting, and so forth, so that it is difficult to be precise about the components of budgetary financing during short intervals of time.

12. Monetary policy was again relaxed in the second half of 1994.

13. Consider a simple illustration. Suppose that velocity is 1 and constant. Suppose that enterprises hold three-fourths of the money supply and households hold one-fourth. Suppose that the budget deficit is 10 percent of GDP and is completely money financed. Initially, inflation is 10 percent a month. Enterprises bear an inflation tax of 7.5 percent of GDP, and households bear an inflation tax of 2.5 percent of GDP. Now suppose that the central bank gives cheap credits to the enterprises to compensate them completely for the inflation tax. Now only the household sector bears the inflation tax. Inflation must rise to 40 percent a month. Enterprises receive a flow of credits worth 30 percent of GDP and pay an inflation tax of 30 percent of GDP, so that they bear no net inflation tax. Households bear an inflation tax of 10 percent of GDP.

14. In the second half of 1992 the dollar value of Russian GDP was approximately \$80 billion a year at the prevailing market exchange rate. Monetary financing of 11 to 12 percent of GDP amounted to around \$10 billion a year at the prevailing real exchange rate. If Western financial assistance directly to the Russian budget had been more than \$10 billion, it would have covered the entire monetary financing at the prevailing real exchange rate. Of course, we should take into account the fact that substantial assistance would have led to a significant real appreciation of the then hugely undervalued currency (the ruble would have stabilized while Russian domestic prices would have continued to rise). Even if GDP measured in dollars had doubled, however, Western assistance to the Russian budget on the order of \$15 billion in 1992 would have covered three-fourths of the monetary finance.

15. The most obvious counterpart of increased velocity is holdings of dollar deposits in the Russian banking system. These deposits have risen from \$1.5 billion in February 1992 to \$12 billion in November 1993, or from 28 percent of ruble deposits in February 1992 to 75 percent in November 1993. These dollar accounts do not carry reserve requirements and so are tantamount to a legal flight from the currency. In addition, there are several billion dollars of U.S. currency circulating in Russia, as well as an estimated \$10–30 billion in dollar deposits held illegally in offshore banks.

16. Western donors are also interested in promoting democratization and rule of law. The war in Chechnya jeopardizes both the fiscal and political conditions of aid.

17. There is also considerable scope for important fiscal reforms within these overall deficit parameters. Existing subsidies to industry should be cut by some 4 percent of GDP, with the expenditure savings used to augment spending on social programs. In addition, tax reform should aim to lower marginal tax rates on corporate and personal income and to compensate for lost tax revenues by eliminating exemptions to the value added tax.

References

- Alexashenko, S. 1993. "The Collapse of the Soviet Fiscal System: What Should be Done?" In P. Sutela, ed., *The Russian Economy in Crisis and Transition*. Helsinki: Bank of Finland.
- Åslund, Anders, ed. 1994. *Economic Transformation in Russia*. London: Pinter Publishing.
- Åslund, Anders, and Richard Layard, eds. 1993. *Changing the Economic System in Russia*. London: Pinter Publishers.
- Been-Lon Chen, and C. C. Yang. 1994. "Avoidance, Micromotives and Macrobehavior: A Dynamic Model of Crime and Punishment." Institute of Economics, Academia Sinica, Taiwan (China).
- Boone, P. Forthcoming. "Why Prices Rose So High: Collapsing Monetary Bubbles in Formerly Socialist Economies." Centre for Economic Performance Discussion Paper. London: London School of Economics.
- Boycko, M., A. Shliefer, and R. Vishny. 1993. "Privatizing Russia." *Brookings Papers on Economic Activity* 2. Washington, D.C.: The Brookings Institution.
- Bruno, Michael. 1993. *Crisis, Stabilization, and Economic Reform*. Oxford: Clarendon Press.
- Bruno, Michael, and Stanley Fischer. 1990. "Seigniorage, Operating Rules, and the High Inflation Trap." *Quarterly Journal of Economics* (May): 353–74.
- Calvo, Guillermo. 1988. "Servicing the Public Debt: The Role of Expectations." *American Economic Review* 78 (4): 647–61.
- . 1989. "Incredible Reforms." In Guillermo Calvo, Ronald Findlay, Pentti Kouri, and Jorge Bragade Macedo, eds., *Debt, Stabilization, and Development*. Oxford: Basil Blackwell.
- Cowell, Frank. 1990. *Cheating the Government: The Economics of Evasion*. Cambridge, Mass.: MIT Press.
- Dornbusch, Rudiger. 1992. "Monetary Problems of Post-Communism: Lessons from the End of the Austro-Hungarian Empire." *Weltwirtschaftliches Archiv* 128 (3): 391–424.
- Easterly, William, and Paulo Vieira da Cunha. 1994. "Financing the Storm: Macroeconomic Crisis in Russia, 1992–93." Policy Research Working Paper 1240. World Bank, Macroeconomics and Growth Division and Europe and Central Asia Country Operations Division II, Washington, D.C.
- Fischer, Stanley. 1994. "Prospects for Russian Stabilization in the Summer of 1993." In Anders Åslund and Richard Layard, eds., *Changing the Economic System in Russia*. London: Pinter Publishers.
- Havrylyshyn, O., and J. Williamson. 1991. *From Soviet Disunion to Eastern Economic Community*. Policy Analysis in International Economics 35. Washington, D.C.: Institute of International Economics.
- IMF (International Monetary Fund). 1994. *International Finance Statistics*. Washington, D.C.

- Isaacson, Walter, and Evan Thomas. 1986. *The Wise Men: Six Friends and the World They Made*. Boston: Faber and Faber.
- Krugman, Paul. 1991. "History versus Expectations." *Quarterly Journal of Economics* 106: 651-57.
- Lipton, David, and Jeffrey Sachs. 1990. "Creating a Market Economy in Eastern Europe: The Case of Poland." *Brookings Papers on Economic Activity* 1. Washington, D.C.: The Brookings Institution.
- . 1992. "Prospects for Russia's Economic Reforms." *Brookings Papers on Economic Activity* 2. Washington, D.C.: The Brookings Institution.
- Matsuyama, K. 1991. "Increasing Returns, Industrialization and Indeterminacy of Equilibria." *Quarterly Journal of Economics* 106: 617-50.
- . 1992. "A Simple Model of Sectoral Adjustment." *Review of Economic Studies* 59: 375-88.
- Mlynarski, Feliks. 1926. *The International Significance of the Depreciation of the Zloty in 1925*. Warsaw: The Polish Economist.
- Obstfeld, Maurice. 1986. "Rational and Self-Fulfilling Balance of Payments Crises." *American Economic Review* 76(1): 72-81.
- . 1994. "The Logic of Currency Crises." Working Paper 4640. National Bureau of Economic Research, Cambridge, Mass.
- Pleskovic, Boris, and Jeffrey Sachs. 1994. "Political Independence and Economic Reform in Slovenia." In O. Blanchard, K. Froot, and J. Sachs, eds., *The Transition in Eastern Europe*. Vol. 2, *Country Studies*. Chicago: National Bureau of Economic Research and the University of Chicago Press.
- Pyle, David. 1989. *Tax Evasion and the Black Economy*. London: MacMillan.
- Rostowski, J. 1993. "The Inter-Enterprise Debt Explosion in the Former Soviet Union: Causes, Consequences, and Cures." *Economic Transformation and Communist Economies* 5: 131-56.
- . 1994. "Dilemmas of Monetary and Financial Policy in Post-Stabilization Russia." In Anders Åslund, ed., *Economic Transformation in Russia*. London: Pinter Publishers.
- Russian Economic Trends*. Volumes 1-3, 1992-94. London: Whurr Publishers.
- Sachs, Jeffrey. 1984. "Theoretical Issues in International Borrowing." Princeton Studies in International Finance 54. Princeton University, Princeton, N.J.
- . 1990. "Eastern Europe's Economics—What is to be Done?" *The Economist*. January 13, 1990.
- . 1993. *Poland's Jump to the Market Economy*. Cambridge, Mass: MIT Press.
- . 1994a. "The Case for Shock Therapy." Social Market Foundation, London.
- . 1994b. "Life in the Economic Emergency Room." In John Williamson, ed., *Political Economy of Policy Reform*. Washington, D.C.: Institute for International Economics.
- . 1994c. "Prospects for Monetary Stabilization in Russia." In Anders Åslund, ed., *Economic Transformation in Russia*. London: Pinter Publishers.
- Sachs, Jeffrey, and David Lipton. 1993. "Remaining Steps to a Market-Based Monetary System in Russia." In Anders Åslund and Richard Layard, eds., *Changing the Economic System in Russia*. London: Pinter Publishers.
- Sah, Raj K. 1991. "Social Osmosis and Patterns of Crime." *Journal of Political Economy* 99 (6): 1272-95.
- Sargent, T., and N. Wallace. 1981. "Some Unpleasant Monetarist Arithmetic." *Federal Reserve Bank of Minneapolis Quarterly Review* 5: 1-17.
- Schacht, Hjalmar. 1956. *Confessions of the "Old Wizard"*. Cambridge: Houghton Mifflin.
- Temin, Peter. 1991. "Soviet and Nazi Planning in the 1930s." *Economic History Review* 44: 573-93.
- Wills, Garry. 1994. "What Makes a Good Leader?" *The Atlantic Monthly* (April): 63-80