Dollarization in the Former Soviet Union: From Hysteria to Hysteresis

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From Hysteria to Hysteresis

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Abstract

The paper reviews evidence of dollarization in FSU countries, and finds it is still very high, the well known hysteresis effect. But high dollarization—defined as use of any foreign currency—is not only due to inertial lack of confidence. There is some tentative evidence that suggests foreign currency is used—in both cash and deposit form—as one of the very few alternative instruments for portfolio diversification in an embryonic financial market. It is also shown that, contrary to the received wisdom, high dollarization does not seriously impede effective conduct of monetary policy: money demand in FSU countries is stabilizing, and the most important objective, meaningful inflation control has been widely achieved. Thus, high dollarization is not **per se** as damaging as often thought, and in fact has a beneficial dimension in promoting financial market development. Nonetheless, high dollarization remains a concern since it provides mechanisms for magnifying vulnerabilities in the event of a crisis even if it might not be the direct cause of a crisis. This necessarily implies that some policy options (such as immediate exchange rate devaluation) are not viable or very costly in a crisis.

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I. INTRODUCTION

We define dollarization in the broadest terms as the use of foreign currency for store of value purposes, as a medium of exchange, and as a unit of account. It has its roots in macroeconomic instability, in particular high inflation and depreciating exchange rates which reduce credibility in the local currency. High dollarization—short of full, official dollarization—is usually considered costly because of loss of seigniorage (since the demand for domestic money is lower); forgone tax revenue (as dollarization enables underground economy activity); and a facilitation of crime and corruption, though the cause and effect here is circular. High dollarization also exacerbates banking system vulnerabilities, with deposit dollarization typically leading to loan dollarization and complicating management of a crisis. But dollarization occurs as a free choice by rational economic agents, and therefore has a beneficial side. It is a classical inflation-beating strategy, thus it reduces the potential for inflationary finance, and allows for better portfolio diversification, which can in turn reduce or even reverse capital flight.

At the outset of transition, there was very limited use of foreign currency in the countries of the Former Soviet Union (FSU). As restrictions on holding foreign currency were loosened and most economies experienced high and volatile inflation rates along with sharply depreciating exchange rates which severely hindered the basic functions of money, this encouraged dollarization as an inflation hedge. But despite successful stabilization from the mid-1990s and a rapid recovery from the 1998 Russia financial crisis, the degree of dollarization remains high. This raises several questions which motivate this paper: (i) what is the most suitable statistical measure of the dollarization phenomenon in FSU countries? (ii) why is the degree of dollarization still high in FSU countries?; (iii) does high dollarization impede effective monetary and exchange rate policy?; and (iv) what can and should be done (or should not be done) to reduce dollarization? To address these, the paper is organized as follows: Section II briefly reviews some key definitions and discusses measurement issues. Section III discusses the relation between macroeconomic developments and dollarization trends in FSU countries. Section IV discusses the monetary policy implications of dollarization and possible de-dollarization strategies. Section V summarizes the findings.

II. WHAT IS DOLLARIZATION AND HOW SHOULD IT BE MEASURED?

A. Defining Dollarization and its Various Forms

We use the term "dollarization" as most of the literature to mean the holding by residents of a significant but still partial share of their assets in form of *any* foreign currency denominated asset. Full and/or official dollarization is beyond the scope of this paper and does seem to be an issue for FSU countries. We follow the literature in recognizing that dollarization results from a decision of economic agents reacting to policies in a rational optimization process. In that literature it is said to take two key forms: currency substitution is the use of foreign currency as a means of payment for transactions; and asset substitution is the use of foreign

currency denominated assets as a store of value.[2] It is then common to equate currency substitution with cash holdings and asset substitution with foreign currency holdings.[3]

We propose that while currency substitution and asset substitution are crucial alternative explanations for the motivation of agents to dollarize, they are not visible forms of the phenomenon. For measurement purposes, more useful categories are cash dollarization, deposit/asset dollarization, and liability dollarization. Until recently the literature was largely restricted to foreign currency deposits as an indicator of dollarization—and for lack of time series data on cash dollarization our paper does the same. A few papers have gone beyond this including Feige (2003) who calculate a comprehensive index using the first two measures, and Reinhart and Savastano (2003) who calculate a composite index using the second and third measure.

Consider briefly the economic phenomenon which motivates agents to dollarize. Currency substitution is a reaction to high inflation, when the cost of using domestic currency for transactions is high because there is a lack of confidence in the domestic currency and it may not always be accepted for transactions.[4] Asset substitution has to do with portfolio allocation decisions, taking into account risk and return characteristics of domestic versus foreign assets. This form of dollarization also occurs when there is low credibility of monetary policy, and thus the central bank's ability and/or willingness to effectively contain inflation and keep the value of the domestic currency stable. But it can also occur even with low inflation and high degree of confidence in the economic policy, and should in general be expected as a beneficial side-effect of opening up financial markets and international market integration. From an institutional perspective, dollarization depends also on the openness of the economy, the depth and size of the financial system, and legal obstacles and transaction costs associated with the acquisition of foreign currency. From an economic perspective, key determinants of dollarization are the interest rate spread, inflation differentials, devaluation

[2] See for example Balino, Bennett, and Borensztein, 1999, and Sahay and Végh, 1995 on dollarization in developing countries; these earlier studies demonstrate that dollarization is by no means unique to the FSU.

[3] The most recent example is Feige (2003) this volume; the concept probably first appeared in the literature in Calvo and Végh (1992).

[4] There are cases of currency substitution—usually at very low levels—based not on lack of confidence but on ease of transactions. Canada, Switzerland, and other small advanced and stable economies with fairly open trade and financial borders have always exhibited holdings and use of neighboring currencies for transaction purpose. The lesson here is that some dollarization per se is not necessarily a reflection of poor economic conditions or policy in a home country.

expectations, and broader macroeconomic factors such as the current account deficit, external debt sustainability, and so forth.[5]

B. Statistical Measures of Cash and Deposit Dollarization

The most commonly used measure of dollarization in the literature has been, for lack of better data, the ratio of foreign currency denominated deposits in the banking system to broad money (see for example Sahay and Végh, 1995 and Balino, Bennett, and Borensztein, 1999). Other studies have employed the ratio of foreign currency denominated deposits to total deposits (Mongardini and Mueller, 2000). Recently, Feige (2003) and Oomes (2003) have argued that the exclusion of foreign currency cash in circulation seriously underestimates the true extent of dollarization and may distort cross-country and time series comparisons. Feige extends these measures by estimating the amount of foreign currency cash circulating in the economy using three data sources. First, the Currency and Monetary Instrument Reports (CMIR) of the U.S. Customs on dollar inflows and outflows to and from the U.S., reported by individuals, second, U.S. Federal Reserve data on shipments of currency, and third, estimates of other European currencies that co-circulate with local currencies.[6] He concludes that traditional measures of dollarization are good indicators of asset substitution but do not properly capture the extent of currency substitution.

There is no doubt about Feige's first claim that deposit dollarization substantially underestimates "total" (asset) dollarization. This must be definitionally true, and Feige's estimates in this volume suggest the underestimate is substantial, with the total being nearly twice the estimate using deposits only. A minor problem here is the possibility that the cash dollarization data source provides no information about on-shipments from the first country of "landing" hence the relationship of cash to deposit dollarization may be too high for some cases (e.g., Russia if dollars go on to, say, Central Asia or Caucasus?) and too low for others—or even too high for all if dollars coming in are shipped out unreported to safehavens.

Some hint of this problem is seen if we consider how the "high-low" groupings of countries in Feige point to some puzzles in light of the expected relation between dollarization and its economic determinants as summarized above.

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[5] It is worth pointing out that currency substitution usually coexists with asset substitution. Asset substitution, on the other hand, does not necessarily imply the presence of currency substitution (see Balino, Bennett, and Bornesztein, 1999).

[6] In studying dollarization in the Kyrgyz Republic, Mongardini and Mueller also estimate foreign currency cash in circulation, using transaction records from foreign exchange bureaus.

Feige finds that, for example, Kazakhstan, Azerbaijan, Georgia, Russia, Armenia, and Latvia exhibit the highest degree of overall dollarization, while Tajikistan and Moldova display dollarization ratios of less than 30 percent. Estonia and Lithuania, on the other hand, exhibit overall dollarization ratios slightly below Uzbekistan. Furthermore, it is shown that Estonia and Latvia display currency substitution ratios (defined by Feige as cash dollarization) comparable to the countries of the Caucasus region and significantly above the ratios shown for Belarus, Uzbekistan and the Kyrgyz Republic.[7] Within each of the above groupings, we observe countries whose state of economic development and macroeconomic fundamentals, financial market depth, and banking system soundness is clearly different and this raises questions about why they should be grouped together. For example, one might expect that the still high inflation rate in Uzbekistan (see below) and the existence of a black market should result in significant cash dollarization yet the CMIR measure shows Uzbekistan as one of the less cash-dollarized FSU countries. The explanation may be strong and still effective administrative restrictions in Uzbekistan or it may be inability of the methodology to capture the true final destination of CMIR or Fed dollar flows. The low Belarus values for cash dollarization also seem suspicious here.

But the puzzles reflect only imperfections in the data that need to be recognized in analysis of trends across countries or time, and do not alter the axiom that more data is better, having both cash dollarization and deposit dollarization is a goal to be sought. At the time this paper was prepared, cash dollarization data were not available in a sufficient time series to allow an analysis of dynamic effects[8] hence we had to rely on foreign currency deposits data with new data provided by Feige's work; future analysis should combine both cash and deposits dollarization.

Feige's first claim about the error in deposit dollarization is however less critical than his second, i.e., that use of deposits only distorts cross-country and/or time patterns. In fact, Feige's own correlations suggest that while the problem is there it is not overwhelming and perhaps concentrated in a small handful of countries. For FSU countries, he calculates a correlation (between the comprehensive dollarization index, including foreign currency cash, and the traditional dollarization index) across countries of "0.657" compared to "0.988" for Central and East Europe. But is "0.657" a "too low" correlation? There is no benchmark here. More important for trends analysis, his inter-temporal correlations show very high correlations (0.804-0.997) for most FSU countries with the exception of Russia (0.222), Kazakhstan (0.363), Azerbaijan (0.415), and Ukraine (0.596).[9] Of these four, three are very

[7] In Estonia, Lithuania, and, to some extent Latvia, euro currency is likely to play an important role in the currency supply. Including it would of course make the ratios even higher (Feige 2002 and 2003).

[8] Feige's most recent paper (2003) now does provide values for the 1990s and through 2001, as does Oomes (2003) for Russia. This data should certainly be used in future analysis.

[9] See Feige (2003), p. 19.

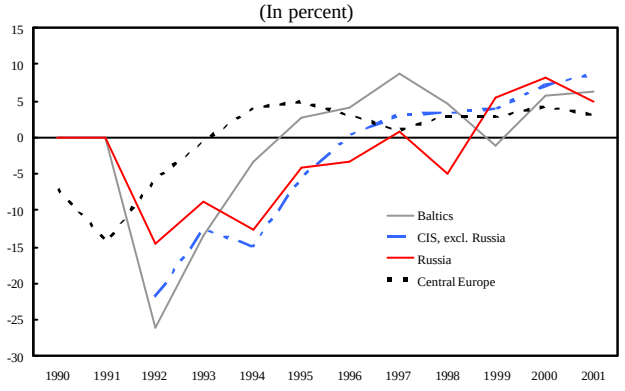
large countries—is there some on-shipment, capital flight, other particular bias, or unique inaccuracy along the lines argued earlier? For Russia, Reinhart and Savastano (2003)(Box 1) use cash dollarization values from an earlier Feige study (1996) and Oomes (2003) and show a clearly similar time profile for their own index excluding cash and including cash. Yet Oomes (2003) Figure 1 shows for the period 1992-1998 a **divergent** trend of cash and deposit dollarization. Clearly, there are data puzzles concerning both cash and deposit dollarization that still need addressing in future research. But this was not our purpose here—we wished first to ask the data if high dollarization has continued. The pertinent non-availability of cash dollarization earlier, and the generally strong correlations for most FSU countries give us comfort that the analysis based on foreign currency deposits is valid. Furthermore, we will show later in the paper that our fundamental conclusions are not put into question by Feige's findings on the time trend of dollarization.

III. Recent Trends in FSU Countries

A. Macroeconomic Developments

Since independence, the FSU countries have made considerable progress in stabilizing their economies. After the initial output decline, which was more pronounced in the FSU than in Central Europe, the Baltics began to recover in 1995, while the countries of the Commonwealth of Independent States (CIS) recorded modest but positive growth rates beginning in 1997, of 2.9 percent on average.[10] At the same time, inflation rates started to decline and exchange rates began to stabilize as monetary policy frameworks gained credibility. This incipient recovery was interrupted by the Russian crisis but only briefly. In the Baltics, the currency boards and exchange rate peg coped well with the crisis; indeed, the official peg rates remained unchanged, though dollar-Euro-SDR movements resulted in the minor devaluation shown in the chart. This came at the cost of a sharp but short-lived reduction in economic activity a year after the crisis had set in.

Figure 1. Growth in Transition Economies
(In percent)



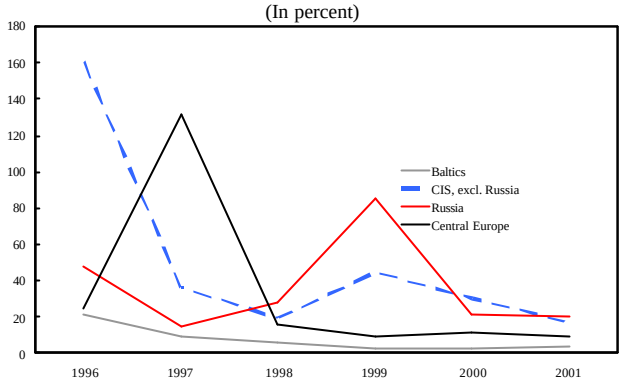
Source: IMF European II Department database; and International Financial Statistics.

[10] Both different initial conditions and policies—production structures and the importance of the military industry prior to independence, as well as a general lack of institutions, infrastructure, and to some extent political will—caused the sharper decline of output in FSU countries at the outset of transition. See, for example, Havrylyshyn et al. (1999).

In addition, the financial sectors experienced some distress, for example, some Latvian banks with sizable exposures to Russia were consolidated. The CIS countries on the other hand, which, except for Turkmenistan, had either managed or independently floating exchange rate regimes, and thus experienced significant exchange rate depreciations, combined with a rise in inflation. Consequently, for most of these the real effects were less pronounced, except for Moldova, Kazakhstan, and, of course, Russia itself.

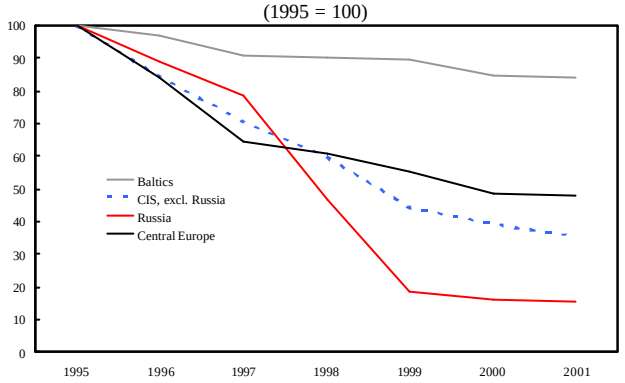
Since then, growth has continued to rise to high levels of 7-8 percent average in 2001-2002. At the same time, inflation has been brought down, and exchange rates have held steady, depreciating only modestly and in a few cases beginning to appreciate in real terms. While the latest financial turmoil in Argentina affected most of the Latin American region, the crisis has not spilled over to the FSU. Indeed, contrary to emerging market trends, bond spreads have come down and credit ratings also reflect renewed private sector confidence (Table 1). In particular, Russia's bond spread has been declining significantly over the past three years and its credit rating has been upgraded most recently.[11] Moody's upgraded Kazakhstan's

Figure 2. Inflation in Transition Economies
(In percent)



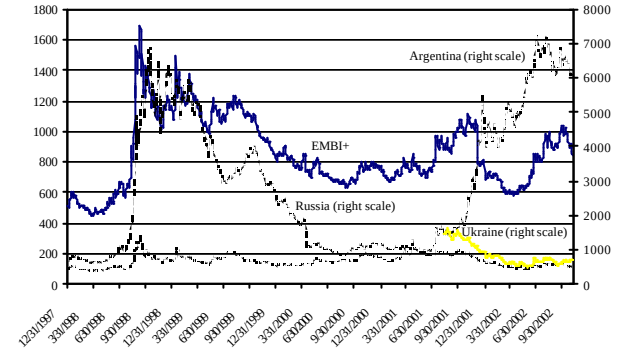
Source: IMF European II Department database; and International Financial Statistics.

Figure 3. Nominal Exchange Rate
(1995 = 100)



Source: IMF European II Department database; and International Financial Statistics.

Figur 4. Emerging Market Spreads

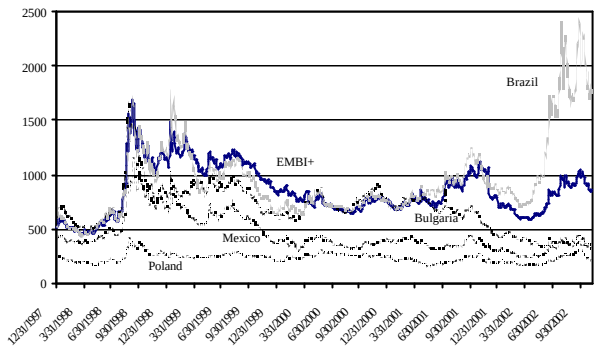


Source: JP Morgan and Chase.

[11] In a June 13, 2002 article (Markets Get the Jitter about Brazil), the Financial Times points out that "Russia, which has been the favorite market for the past two years, has held up best in recent weeks. The country, which defaulted on its domestic debt in 1998, is today seen as a safe haven for emerging markets investors."

rating in September 2002 to investment grade, not only because of the increasing oil revenues but also the expectation that "the economy will eventually diversify ... and has a stable banking system."[12] In the case of Russia and Kazakhstan, the large accumulation of reserves from oil exports goes a long way to explain the gain in confidence. But the fact that Ukraine too saw this trend suggests a recognition of another factor: materially improved fundamentals. Indeed, growth of non-oil sectors in Russia and Kazakhstan is distinctly positive. Overall, these positive developments have helped both Russia and even Ukraine to narrow the gap in spreads and ratings relative to the countries of Central Europe and the Baltics.

Figure 5. Emerging Market Spreads



Source: JP Morgan and Chase.

Table 1. Emerging Market Spreads and Sovereign Ratings

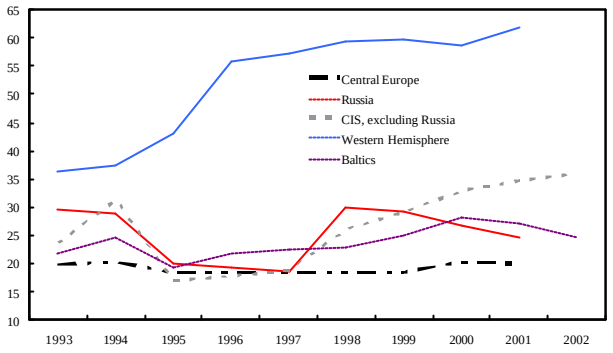
Spreads in BPS/ S&P Sovereign Ratings 1/	December 31, 2002		June 30, 1999		March 31, 1998	
	Spread	Rating	Spread	Rating	Spread	Rating
EMBI+	765	-	1070	-	462	-
EMBI+ Adjusted for Argentina	670	-	-	-	-	-
EMBI+ Adjusted for Russia	-	-	939	-	-	-
Argentina	6391	SD	758	BB	395	BB
Bulgaria	291	BB	911	B	515	-
Brazil	1446	B+	957	B+	443	BB-
Mexico	331	BBB-	623	BB	373	BB
Poland	185	BBB+	260	BBB	195	BBB-
Latvia	84	BBB+	209	BBB	-	BBB
Lithuania	77	BBB	-	BBB-	-	BBB-
Russia	487	BB	2963	SD	651	BB-
Turkey	693	B-	488	B	-	B
Ukraine	671	B	-	-	-	-

Sources: S&P, JP Morgan and Chase, and DataStream.
1/ Long-Term Foreign Currency Rating.

[12] Financial Times, September 20, 2002, page 5.

B. Dollarization Levels and Trends

Figure 6. Foreign Currency Deposits in Percent of Broad Money



Source: IMF European II Department database; International Financial Statistics; and country authorities.

Despite the much improved economic performance and stabilization since the late 1990s, the degree of dollarization as measured by deposit ratios remains relatively high and is even rising in most countries. At end-2001, the average rate of dollarization was about 35 percent, ranging from 17 percent in Estonia to 52 percent in Belarus (Table 2). In the aftermath of the 1998 crisis, one sees reduced deposit dollarization in Russia, while other CIS countries experienced a steady increase. On a regional basis, dollarization was lowest in the Baltics—27 percent—and highest in the Caucasus region—48 percent. The traditional asset substitution measure—foreign currency deposits to total deposits—on the other hand was 56 percent on average, ranging from 21 percent in Estonia to 90 percent in Georgia (see Table 3). On a regional basis, this measure was highest in the Caucasus and lowest in the Baltics—85 percent and 36 percent, respectively.

Table 2. FSU: Deposit Dollarization Ratios 1993-2001 1/

	1993	1994	1995	1996	1997	1998	1999	2000	2001
Baltics	20.0	24.8	19.1	21.7	22.5	22.8	24.9	28.1	27.0
Estonia	4.1	9.3	9.4	10.3	15.3	15.7	14.5	19.3	17.2
Latvia	35.6	38.2	22.1	30.7	31.2	28.6	29.9	31.1	30.8
Lithuania	20.3	27.0	25.8	24.2	21.2	24.1	30.4	34.0	32.9
Other Europe	25.5	31.9	19.3	18.0	17.2	32.3	31.4	34.3	30.7
Belarus	37.7	56.5	23.5	24.2	27.3	55.6	43.7	58.7	52.0
Moldova	15.2	10.3	11.0	9.9	9.5	22.7	27.7	28.4	27.6
Russia	29.5	28.8	20.0	19.4	18.5	29.9	29.2	26.9	24.5
Ukraine	19.4	32.0	22.8	18.3	13.3	21.3	25.1	23.2	18.7
Caucasus	29.2	56.2	13.0	12.3	15.2	18.5	21.4	28.0	31.3
Armenia	...	...	20.4	21.0	33.5	39.8	48.1	49.1	50.3
Azerbaijan	14.8	58.9	26.3	22.1	24.6	26.2	28.5	37.5	48.9
Georgia	43.6	53.5	12.7	15.0	20.9	29.1	35.6	46.2	44.9
Central Asia	19.0	15.0	17.0	17.9	15.4	19.0	23.5	31.3	35.5
Kazakhstan	54.6	26.2	24.3	20.5	10.5	19.4	29.5	37.4	46.6
Kyrgyz Republic	11.5	6.7	7.9	8.7	15.4	23.9	27.8	28.1	25.1
Tajikistan	...	...	33.2	16.1	13.5	20.6	21.0	31.0	41.3
Turkmenistan	4.9	5.7	4.8	30.2	23.0	21.6	30.5	40.3	39.9
Uzbekistan	5.1	21.2	15.0	14.1	14.5	9.4	8.8	19.5	24.4

Source: IMF European II Department database.
1/ Defined as the ratio of foreign currency deposits to broad money.

Table 3. FSU: Dollarization and Macroeconomic Performance, 2001

	Asset Substitution Indicators 1/	Deposit Dollarization 2/	Inflation	Growth
Baltics	36.2	27.0	3.2	6.3
Estonia	20.7	17.2	5.8	5.4
Latvia	45.0	30.8	2.5	7.6
Lithuania	42.8	32.9	1.3	5.9
Other Europe	44.0	30.7	23.9	6.0
Belarus	64.8	52.0	61.3	4.1
Moldova	44.8	27.6	6.4	5.0
Russia	33.8	24.5	21.6	10.2
Ukraine	32.6	18.7	6.1	4.5
Caucasus	85.4	48.0	3.2	7.7
Armenia	81.1	50.3	3.4	9.6
Azerbaijan	85.4	48.9	1.5	9.0
Georgia	89.6	44.9	4.7	4.5
Central Asia	58.5	35.5	18.5	11.3
Kazakhstan	60.5	46.6	8.4	13.2
Kyrgyz Republic	63.9	25.1	7.0	5.3
Tajikistan	72.8	41.3	38.6	20.5
Turkmenistan	57.8	39.9	11.4	9.1
Uzbekistan	37.6	24.4	27.2	8.4

Source: IMF European II Department database.
1/ Defined as foreign currency deposits divided by total deposits.
2/ Defined as foreign currency deposits divided by broad money.

By comparison, countries in the Western Hemisphere continue to display much higher deposit dollarization ratios, while countries in Central Europe had, on average, fairly stable and low dollarization ratios throughout the transition period. The composite index of Reinhart and Savastano (2003) leads to a similar conclusion, giving values for FSU countries in the "high to moderate" range (5-13, average of 8.8) compared to their very high dollarization countries in the range of 14-25, many of them in the Western Hemisphere. The relative differences between the broader dollarization measure and the admittedly imperfect asset substitution indicator we argue reflect the different stages of banking sector development and confidence in banks. Thus, the domestic currency component in broad money was highest in the Caucasus (particularly Georgia), followed by Central Asia (especially the Kyrgyz Republic and Tajikistan), other Europe (most notably Moldova); not surprisingly it was lowest in the more advanced Baltics.

C. Reasons for Persistence of Dollarization

Given recent improvements in macroeconomic fundamentals, why has dollarization been persistent and not declined? The persistence phenomenon is not new and has been discussed extensively in the literature for developing countries. Most commonly this is attributed to hysteresis effects. As Oomes (2003) nicely points out "hysteresis" is not a theoretical explanation but the persistence of a previous state. The explanation is typically that once people have adjusted to macroeconomic instability by switching to foreign currency and reducing the demand for real domestic money balances, they lack confidence for a long time

even if macroeconomic fundamentals improve sharply. Empirically, this phenomenon is often captured by including a so-called ratchet variable, as in Mongardini and Mueller (2000) who concluded that in the case of the Kyrgyz Republic, ratchet effects were not too strong, and there was then still scope for a gradual reduction of dollarization levels.[13] Other studies add the effect of network externalities (Oomes 2003 and Feige 2002), in which dollarization depends not only on past depreciation or inflation but also on the degree to which foreign currency is accepted as a means of payment by sellers but the reason for acceptability by sellers may also be related to long memory of instability.

We do not see the value of another econometric exercise using ratchet, or learning-lags or network externality effects to explain the fact of hysteresis we observe. First, we merely point to the fact that high dollarization does persist and perhaps even rises after a clear achievement of improved fundamentals. The contrast between the picture of macroeconomic developments in Section IIIA, and the deposit dollarization trends in Section IIIB[14] confirm this hysteresis. Second, however, we wish to propose tentatively one additional explanation for continued high dollarization; increase portfolio diversification motives for transition economy agents only recently allowed to exercise portfolio decisions in a new market economy.

Economic agents in the FSU still face considerable limitations on institutional and market opportunities for portfolio choice particularly in the forms of asset substitution. As pointed out by World Bank (2002) the lack of capital market development limits the potential for securitized finance of the real economy. Stock markets are typically volatile and illiquid, and evidence of stagnating listings or even de-listings raise doubts about their sustainability. Limited capital market development, however, also implies that enterprises have to rely on either bank finance, retained earnings, or foreign investment to finance the bulk of new investment projects, rather than being able to offer investment opportunities to prospective savers.[15] The lack of diverse savings vehicles, other than local or foreign currency bank deposits and local and foreign currency cash, may be an important factor driving agents into holdings of foreign currency in either form for reasons of portfolio diversification.

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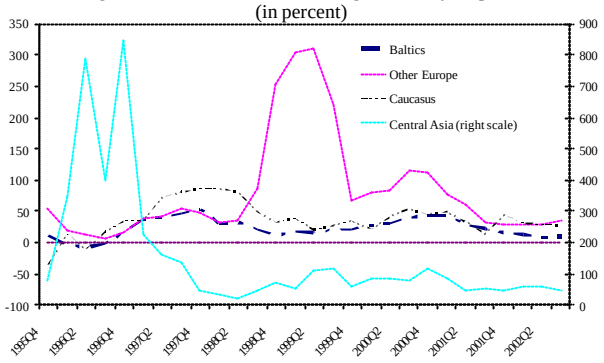
[13] In the event, this study could not capture the aftermath of the Russian crisis, which perhaps caused the dollarization ratio in the Kyrgyz Republic to rise as seen in Table 2. Oomes (2003) refers to other such studies, as well as analogous approaches learning of new financial instruments.

[14] The available evidence on each dollarization as seen in Feige (2003) and Oomes (2003) leads to the same conclusion as we do in Section IIIB.

[15] See for example Berglof and Bolton (2001) and IMF (2000).

Dollarization allows domestic investors to select from a broader range of assets, diversifying portfolios and reducing risks. Moreover, the pricing of domestic financial assets may still be difficult given the lack of sufficient benchmark instruments in most FSU countries. The development of sound government debt markets in some FSU countries has only begun to create these benchmarks, which should facilitate the future development (and pricing) of corporate debt securities markets and, over time, increase the availability of domestic currency assets.[16]

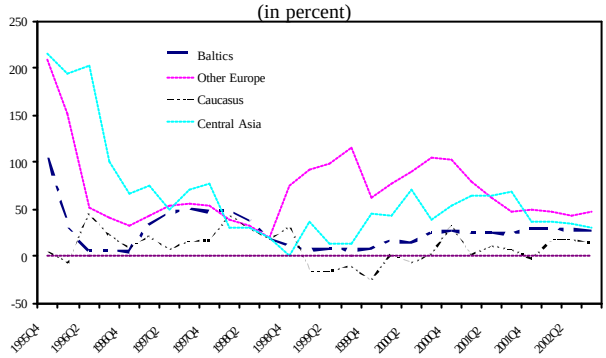
Figure 7. Annual Growth of Foreign Currency Deposits
(in percent)



Source: IMF European II Department database.

A related consideration in the portfolio choice is the soundness of the domestic banking system and the quality of financial sector regulation, or at least how residents perceive it. The very early years of transition saw a rise in foreign currency deposits as those opportunities were first made legal. Then, these fell again as of 1995, reflecting the first doubt about bank stability and economic policy in general after 3-4 years of near hyper inflation in most countries. This period was also marked by capital flight as residents trusted external foreign currency deposits or assets to local foreign currency deposits. With inflation dropping sharply and growth becoming positive by about 1997 (see Section IIIA charts) for most countries, we see a rebound in foreign currency deposits. Given the earlier instability, this is perhaps the most compelling piece of evidence that dollarization is not only a bad or worrisome phenomenon reflecting poor policy, but can also be an indication of an improving situation. Why would agents freely choose to **increase** their deposits in banks rather than keep them under mattresses or abroad? As these economies were now growing,

Figure 8. Annual Growth of Local Currency Deposits
(in percent)



Source: IMF European II Department database.

[16] See for example Fry (1997) and BIS (2002) on some country experiences in creating markets for government debt aimed at facilitating the development of corporate debt markets. In Latvia, the government has even issued long-term bonds beyond financing needs to foster long-term finance in domestic currency. In contrast, Kazakhstan issued eurobonds for its pension system to buy.

total money supply was growing (1997-2002) at an average of 37 percent, both local and foreign currency deposits were growing (on average 1997-2002) at 33 percent and 52 percent, respectively), monetization was sharply increasing (Table 4), it is difficult to reach any conclusion but that confidence in banking systems began to recover very soon after 1997-1998.

Table 4. Monetization in Eastern Europe and the FSU

	Broad Money (in percent of GDP)					Credit to the Private Sector (in percent of GDP)				
	1997	1998	1999	2000	2001	1997	1998	1999	2000	2001
Central and Eastern Europe	**39.2**	**40.6**	**42.6**	**44.3**	**46.9**	**28.0**	**28.1**	**28.0**	**27.6**	**26.4**
Albania	52.3	47.8	53.5	56.7	60.1	4.4	3.8	3.7	4.3	4.8
Bulgaria	24.9	28.1	28.3	31.9	34.7	17.4	16.4	16.8	16.6	14.8
Croatia	35.7	39.0	38.7	40.4	48.6	32.9	39.9	40.8	36.4	39.5
Czech Republic	68.1	66.3	69.6	72.4	74.2	64.0	61.4	57.3	52.2	44.5
Hungary	35.6	41.2	42.9	42.7	42.9	20.8	22.3	23.0	26.1	29.7
Poland	41.0	43.2	48.0	48.7	50.7	20.3	22.7	25.9	28.5	29.7
Macedonia	12.0	13.0	15.3	17.1	19.0	25.6	22.1	18.3	17.7	18.0
Romania	18.3	19.2	20.0	19.0	19.2	14.8	13.3	12.2	11.8	11.1
Slovak Republic	61.2	60.3	60.2	63.6	64.4	53.3	50.4	49.5	46.3	33.8
Slovenia	42.5	47.5	49.2	50.9	55.0	26.3	28.5	32.3	35.9	38.0
Baltics	**21.8**	**23.6**	**25.0**	**27.6**	**30.1**	**14.8**	**19.8**	**20.9**	**22.3**	**25.6**
Estonia	26.7	27.9	30.6	35.6	38.6	25.0	33.0	31.9	35.4	41.1
Latvia	22.5	25.4	24.1	26.3	28.2	8.9	14.4	15.8	18.0	23.1
Lithuania	16.3	17.6	20.3	20.9	23.4	10.4	12.1	14.9	13.5	12.7
CIS	**12.1**	**12.6**	**12.6**	**13.0**	**14.3**	**7.9**	**8.9**	**8.8**	**8.5**	**9.7**
Armenia	7.8	8.6	10.1	11.9	13.4	5.5	6.6	8.8	9.9	8.5
Azerbaijan	11.2	11.6	12.9	9.6	9.9	12.1	12.4	12.6	8.0	7.4
Belarus	11.7	13.2	11.4	11.6	12.8	6.3	7.4	6.4	4.8	7.1
Georgia	6.6	7.3	7.6	8.7	10.0	3.7	5.3	6.9	7.9	8.9
Kazakhstan	…	8.9	9.5	12.4	14.2	4.5	5.9	7.5	9.2	12.5
Kyrgyz Republic	12.1	13.7	12.4	10.7	9.4	2.8	4.8	4.8	3.9	3.6
Moldova	18.7	19.7	19.0	18.7	21.5	17.6	18.4	13.8	12.1	13.9
Russia	17.0	17.4	16.3	17.9	20.0	11.1	11.1	9.5	10.3	13.0
Ukraine	11.8	13.1	13.9	15.4	17.4	7.5	8.2	8.5	10.0	12.5
FSU	17.0	18.1	18.8	20.3	22.2	11.3	14.4	14.8	15.4	17.7

Source: Economic Commision for Europe, Economic Survey of Europe 2002, No. 1.

In Russia, the FCD ratio fell, but the absolute value of domestic currency deposits and foreign currency deposits was also growing at 37 percent and 47 percent, respectively (1997-2002) compared to average economic growth of about 3 percent (1997 and 2001).[17] Is this increase in foreign currency deposits due to portfolio diversification choices, or traditional hedging against future uncertainty? It is again very hard to believe individuals seeking a hedge against renewed instability after 1997-98 would do it by putting dollars in local banks;

[17] The average growth rate between 1999 and 2001 was 6.2 percent (IMF European II Department database).

portfolio diversification remains a likely explanation. Two other pieces of (incomplete) evidence support this interpretation. The ratios of barter to total trade fell sharply in Russia and Ukraine, (from 49 percent at end-1998 to 13 percent at end-2001 in Russia and from 41 percent at end-1998 to 17 percent at end-2000 in Ukraine) suggesting greater reliance on monetized (if not always "official" and above-ground) activities.[18] The return of foreign capital inflows and the sharp decline in spreads described earlier also support this view.

While there is still scope for improving the legal and regulatory frameworks, in particular their enforcement,[19] the apparent gradual repatriation of capital in the FSU suggests that confidence in the economic prospects, and even to a limited degree in the banking systems, is gradually coming back. This, in turn, may support the persistence of dollarization or even a rise in it. Indeed, since we use the deposit ratio measures, not having adequate cash holding measures, a rise in our dollarization ratio is consistent with a decline in cash dollars and a rise in deposits reflecting some increased confidence in the banking system. In the same vein, the fact that dollarization is not illegal supports the repatriation of capital. Finally, many of the FSU economies are heavily involved in international trade and/or deal in goods that are priced in foreign currency on world markets (e.g. oil and gas). As a result, there is a higher need to hold foreign currency for day-to-day business transactions (or invest proceeds from such transactions), reflecting the view of Ize and Levy-Yeyati (1998) that dollarization can also at least partly be seen as a consequence of trade liberalization and international integration. Of course, the hysteresis effect of inertial lack of confidence about inflation-devaluation prospects may remain important and if Feige-type data were available in time series, this factor could be better assessed.

What does all this say about measuring dollarization—cash or deposit? It clearly says a full understanding of the dynamics of dollarization in its various forms should look at the two forms jointly overtime, how the aggregates move, what flows there are between cash and deposits and abroad, and an attempt to explain these movements by recognizing both "bad" motivations—hedging against instability—and "good" ones—seeking portfolio diversification in an underdeveloped financial system.

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[18] Russian Economic Barometer, various issues; Ukraine: IMF Country Report 01/28, February 5, 2001.

[19] Berglof and Bolton (2001) emphasize the lack of proper enforcement of legal and regulatory frameworks in the CIS, limiting the scope to clean up the banking system of the remaining unsound institutions. Also see IMF (2000) and World Bank (2002).

IV. Implications of Dollarization and De-Dollarization Strategies

A. How Does Dollarization Affect Monetary Policy?

Theory and evidence

Do present levels of dollarization in FSU countries create a threat to macroeconomic stability, or at least complicate monetary policy? In the conventional literature (nicely summarized by Reinhart and Savastano, 2003), dollarization, most notably the presence of currency substitution, is thought to lead to a more volatile exchange rate (unless pegged), as there may be more frequent and unexpected shifts in the use of domestic versus foreign money. In addition, the demand for the domestic component of money is thought to be more sensitive to changes in its expected opportunity cost. By contrast, the asset substitution phenomenon by itself does not directly affect narrow money demand. Nonetheless, the availability of domestic foreign currency deposits may limit the central bank's controllability of interest rates as both domestic foreign currency deposits and foreign currency deposits held abroad are likely to be close substitutes (see Balino et al., 1999, for details).[20]

The evidence in most FSU countries, however, suggests that the main goal of monetary policy, i.e., achieving price stability, has been successfully implemented over the past decade.[21] Most broadly, this is seen in the fact of a substantial decline of inflation (Section III.A), at the same time as dollarization clearly remained high (Section III.B, and Feige 2003). More concretely, Table 5 shows that inflation in FSU countries is positively correlated with various concepts of money, though the values are lower in general for the later period. Of course, a simple correlation cannot pretend to capture fully the effect of monetary policy on inflation, in particular once the latter has fallen to single digits. Excluding the earlier transition period from the sample results in a significant drop of correlation coefficients—for example to 0.12 in Ukraine, to 0.25 in Armenia, to 0.30 in Kazakhstan, etc—highlighting the fact that the inflation process is not only determined by monetary variables, but also other factors such as wages, the exchange rate etc. In a more sophisticated cointegration analysis, which includes a broader set of variables—exchange rate, wages, etc., Lissovolik (2003) confirms a clear link between money and prices in Ukraine for the entire decade and the period before 1996. He also finds a much weaker or even statistically insignificant relationship between money and prices during the low inflation period of 1996 until 2002.

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[20] Presumably, dollarization implies a certain degree of capital mobility. As domestic foreign currency deposits are close substitutes to foreign currency deposits abroad, there is a closer link between interest rates, thus, there is less scope for the domestic monetary authority to control domestic interest rates.

[21] In addition, as pointed out above, exchange rates have been gradually depreciating without being excessively volatile since the end of the Russian crisis.

Table 5. FSU: Simple Correlation Coefficients between Inflation, Money, and Exchange Rates. 1/

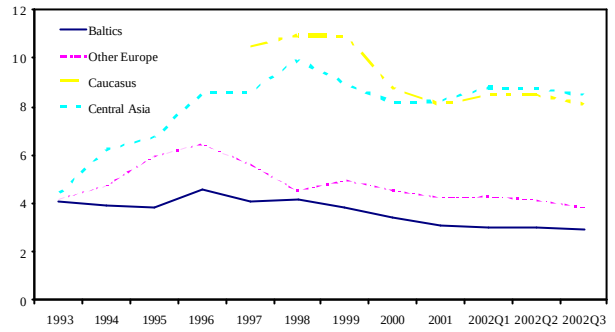
	Broad Money Growth Including FCD and Inflation	Broad Money Growth Excluding FCD and Inflation	Reserve Money Growth and Inflation	Exchange Rate Change (NC/$) and Inflation	Sample
Armenia	0.72	0.19	0.97	0.99	1994Q4-2002Q3
Azerbaijan	0.99	0.96	0.98	0.99	1994Q4-2002Q3
Belarus	0.79	0.84	0.86	0.88	1996Q4-2002Q3
Estonia	0.47	0.37	0.19	-0.46	1994Q4-2002Q3
Georgia	0.99	0.93	0.92	1.00	1994Q4-2002Q3
Kazakhstan	0.65	0.81	0.88	0.92	1994Q4-2002Q3
Kyrgyz Republic	0.75	0.67	0.65	0.37	1994Q4-2002Q3
Latvia	0.33	0.42	0.05	-0.49	1994Q4-2002Q3
Lithuania	0.56	0.53	0.62	0.28	1994Q4-2002Q3
Moldova	0.64	0.59	0.80	0.32	1994Q4-2002Q3
Russia	0.93	0.88	0.84	0.66	1994Q4-2002Q3
Tajikistan	0.46	0.52	0.58	0.94	1997Q1-2002Q3
Turkmenistan	0.89	0.88	0.82	0.84	1994Q4-2002Q3
Ukraine	0.92	0.92	0.84	0.93	1994Q4-2002Q3
Uzbekistan	0.96	0.92	0.75	0.99	1994Q4-2002Q3
Average	0.74	0.70	0.72	0.61	

Source: IMF European II Department database.
1/ Variables are defined as annual inflation, annual broad money growth, annual reserve money growth, and the annual exchange rate change.

Similarly, Reinhart and Savastano (2003) find that for a large sample of developing and transition countries "contrary to the received wisdom, there is little evidence to support the view that a high degree of dollarization complicates the achievement and maintenance of low inflation." The theoretical paradigm, suggesting that dollarization complicates monetary policy because of less reliable intermediate targets and less effective monetary policy instruments, rests on the presumption that dollarization renders money demand unstable and less predictable. Yet, it has not taken longer to stabilize inflation in dollarized economies to single digits—regardless of the choice of nominal anchor. They also find a clear link between monetary aggregates and inflation.

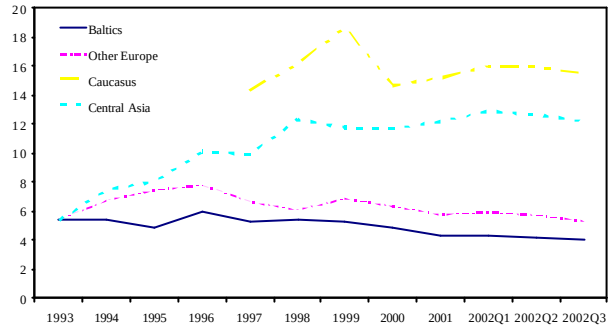
As pointed out above, theory would predict that high degrees of dollarization would render monetary policy less effective, primarily because of unstable and less predictable demand for money. Yet the evidence in FSU countries does not systematically support this view.[22] On average, the Baltics experienced a stable and declining trend in broad money velocity—both including and excluding foreign currency deposits since 1996. The remaining Eastern European countries—Belarus, Moldova, Russia, and Ukraine—displayed a stable and declining trend since 1999, while both Central Asia and the Caucasus region achieved stability in velocity more recently.

Figure 9. Velocity of Broad Money, including FX Deposits



Source: IMF European II Department database.

Figure 10. Velocity of Domestic Broad Money



Source: IMF European II Department database.

Broadly seen, the favorable monetary fundamentals appear to have contributed to higher monetary policy credibility and confidence in the economies more generally. Monetary and fiscal policies have been successful in bringing inflation down and maintaining the stability in the value of the domestic currency. Given this stability and some equilibration of portfolio choices, these higher levels of dollarization do not appear to have in themselves seriously hampered monetary management at this time. The level of dollarization that is presently observed in FSU countries may therefore constitute a short-term "equilibrium", which does not impede monetary policy implementation.

Operational considerations

Apart from Estonia and Lithuania, which operate currency boards and Latvia which has a fixed exchange rate regime (peg to the SDR), FSU countries operate either independently floating exchange rate regimes (Armenia, Georgia, Moldova, and Tajikistan), managed floats (Kazakhstan, Kyrgyz Republic, Russia, Ukraine, Azerbaijan, and Uzbekistan), or a exchange

[22] Also see Reinhart and Savastano (2003), who do not find evidence in support of the "received wisdom" by looking at measures of velocity in a broad set of countries.

rate regime with crawling bands (Belarus). Since the exchange rate pegs limit the scope for domestic monetary policy—and the currency boards virtually eliminates it except for reserve requirements and the placement of government deposits—only those FSU countries with floating rates pursue inflation objectives through controlling monetary aggregates.[23] This has some important implications.

While arguably the choice of monetary instruments should be appropriate to the nature of domestic money markets, using domestic currency instruments may serve as a strong signal of the central bank's support of the domestic currency. However, the success of such strategy will depend on the depth of domestic money markets, that is, on the degree of dollarization. Since domestic money markets in FSU countries tend to be much thinner than foreign exchange markets, foreign exchange operations have long been the predominant monetary instrument for monetary management. The early stage of debt market development has also important implications for monetary policy implementation. For example, the effective use of repurchase operations requires the availability of sufficient high quality and liquid collateral, which is still lacking in many FSU countries. As a result, repo operations are still limited in size, but open market operations in domestic currency instruments will become increasingly important as financial markets continue to deepen.

The market conditions outlined above also imply that, in general, reserve requirements play a more important role than open market operation as a monetary policy instrument. In addition, banking systems in many FSU economies are still fragile, which would tend to call for higher reserve ratios than in mature markets where reserve requirements only play a very limited prudential role.[24] The design of reserve requirements, however, has an impact on both deposit and loan dollarization. Essentially, shifts in reserve requirements and/or remuneration rates on foreign currency deposits relative to domestic currency deposits affect the domestic interest rate differential between foreign and domestic currency and the differential in banks' intermediation spreads (in foreign and local currency). The interest rate effect can also be achieved through open market operations, as liquidity injections or absorptions affect the internal interest rate differential between domestic and foreign currency.

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[23] Intermediate targets range from NDA and reserve money in Armenia and Azerbaijan, the dollar exchange rate (de facto) in Belarus, reserve money in Kazakhstan and Moldova, money in Russia (though the exchange rate is heavily managed), and implicitly the exchange rate in Ukraine.

[24] While the Baltics are in the process of gradually aligning their reserve requirement regimes with ECB rules (RR of 2 percent), CIS countries tend to have higher reserve ratios on average, around 10 percent. Russia, for example has a reserve ratio of 10 percent for corporate clients and 7 percent for deposits of individuals, both in domestic and foreign currency. The Kyrgyz Republic applies a reserve ratio of 10 percent for all deposits except for foreign currency deposits with a term of over 1 year. Azerbaijan uses a uniform system, applying a reserve ratio of 10 percent on all deposits. Georgia requires its banks to hold 14 percent of attracted funds.

B. Dollarization and Financial Crises

The latest financial crisis in Latin America has sparked an intense discussion on the potential adverse effects of dollarization on financial sector and macroeconomic stability. Financial sector balance sheet dollarization poses systemic risks and creates a potential channel of contagion (see IMF, 2002). As noted, the dollarization phenomenon is clearly linked to macroeconomic instability then typically persists long after the underlying imbalances are corrected. At the same time, there is no clear evidence that dollarization per se causes financial crises, nevertheless history has taught the harsh lesson that dollarization can greatly exacerbate a crisis.

The extent to which dollarization affects management of a financial crisis depends on (i) the degree of dollarization; (ii) soundness of the financial system; and (iii) more generally, the institutional features of the respective economy. High dollarization ratios can be costly in that they result in a loss of seigniorage through the reduced demand for domestic money. [25] In addition, highly dollarized economies may also face increased susceptibility to crisis in financial and foreign exchange markets.[26] It is the latter that has the most significant policy implications, affecting the authorities' ability to effectively deal with financial crises. Financial institutions are typically vulnerable to crises because they are highly leveraged, exposed to maturity mismatches, and operate in markets with asymmetric information. In addition, the financial system is vulnerable to changing exchange rates and to changes in cash flows, such as through the potential withdrawal of foreign currency deposits or credit lines by foreign banks.[27] Thus, in view of the potentially negative effects of exchange rate movements on bank and corporate balance sheets, devaluation may not be a policy option in a crisis or at best a very costly one.[28] From a monetary perspective, the central bank's lender of last resort function may be hampered during a crisis as a result of deteriorating foreign currency liquidity in the banking system.

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[25] The loss of seigniorage can also pose a risk to national budgets in that other sources of finance have to be found. However, macroeconomic stability and sufficient financial sector development, implying a lower base for the inflation tax, sets this argument into perspective. Monetization in CIS countries, however, is still low, thereby limiting potential losses from forgone seigniorage.

[26] See for example Balino, Bennett, and Borensztein, 1999.

[27] Uruguay is a good example. Deposit outflows were particularly strong in domestic banks that had to rely on the central bank for liquidity support, which has driven down international reserves.

[28] Powell (2002) for examples argues that the "safety valve" view of depreciation might be so costly in highly dollarized economies that it is not a safety valve at all.

The potentially adverse balance sheet effects during a crisis can be mitigated, but not eliminated, through a sound regulatory regime and sufficient bank solvency and, more importantly, liquidity.[29] The FSU countries have made progress in restructuring their banking systems and improving regulatory frameworks, but there are still significant lags relative to the Baltics and Central Europe. Enforcement of regulatory frameworks is still weak in many CIS countries (Berglof and Bolton, 2001), as authorities often find it difficult to resist pressures to bail out banks rather than choosing the initially more costly strategy of closing them. Qualitative assessments of financial sectors in CIS countries vary in the degree of concern, but in most cases it is thought substantial bank weaknesses exist and need to be dealt with. At the same time, weak regulatory enforcement has facilitated the "ever greening" of loans, which affects the reliability of reported nonperforming loan ratios and reported profits as such loans may not be adequately provisioned for. Overall, as Tang, Zoli, and Klytchnikova (2000) put it, CIS countries pursued a less fiscally costly approach to banking sector restructuring than Central European countries or the Baltics, which resulted in weaker banking systems and less financial intermediation.[30]

Banking indicators given by Bankscope suggest that banks in FSU countries are sufficiently capitalized, liquid and comparably profitable. However, lending activity is still small by international standards and some banks do not lend at all, which results in an upward bias in capitalization data. Solvency ratios at end 2001 ranged from 11 percent in the Baltics to 18 percent in the CIS. Another problem is that averages across all reporting banks in a country do not typically provide sufficient reassurance that capital adequacy in the entire system is indeed comfortable. It also seems difficult to believe that the quality of loans is better in Russia (the ratio of nonperforming loans to gross loans was 1.22 percent at end-2001) or the CIS as a whole (the average ratio was 1.18 at end-2001), than for example, in the Baltics (where the average ratio was 1.7 percent at end-2001). As pointed out earlier, the CIS countries are still struggling with financially unsound banks, which may not be included in the Bankscope database. While the lack of lending activity in the CIS would suggest less scope for bad loans to emerge (credit to GDP ratios are much higher in the Baltics and Central Europe), the problem of loan "ever greening" described above cannot be ignored and may partly explain the lack of difference between the Baltics and the CIS.

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[29] However, an excessively overcapitalized banking system, while less susceptible to crises, tends to be inefficient.

[30] The Baltics, for example developed sound banking systems through allowing foreign ownership of banks, which has fostered governance and sound lending practices and has enhance risk management practices.

[31] These data, however, have to be interpreted with caution due to different accounting standards, potential double counting. Accounting standards , since not all banks are included.

C. What Can be Done to Reduce Dollarization?

Consider first the trade-off between the costs of dollarization and the costs that may come from any policy measure used to reduce it. Slowing down financial dollarization can have costs since it reflects optimal portfolio choices of agents. Taking away asset substitution and portfolio diversification possibilities (reducing dollarization) may result in welfare losses due to the loss of risk hedging options. Other types of welfare losses can also occur, and it would be a mistake to ignore them when proposing policies that can reduce dollarization. As an example, consider the study by Oomes (2003) which identifies three broad policy levers at the disposal of policymakers in Russia to reduce dollarization: exchange rate policy, fiscal policy, and enforcement policy. The paper suggests that dollarization in Russia could be reduced if the ruble were allowed to temporarily but significantly appreciate, or if the authorities would more strictly enforce laws that prohibit transactions to be carried out in dollars. But the considerable appreciation needed for a meaningful reduction in dollarization may imply a serious cost in terms of loss of competitiveness, which could easily exceed any benefits of reduced dollarization. At the very least, any such proposals must calculate both the benefits and costs of dollarization and the same for any policy used to de-dollarize.[32]

Bearing this in mind, we turn to consider possible measures that reduce dollarization.

Short-term measures

An effective but clearly undesirable measure to curb dollarization would be to reverse the opening of FSU economies and engage in direct administrative measures such as the introduction of capital controls or the prohibition of foreign currency deposits.[33] But such measures would reverse the broadly successful liberalization and global market integration and would almost certainly provide only a short-lived solution. Capital controls and the prohibition of foreign currency deposits are unlikely to boost the demand for domestic

[32] A good example is Berg and Borensztein (2000) who have assessed the costs and benefits of full dollarization. Whether or not full dollarization could be beneficial depends on country specifics, most notably the present degree of dollarization. Countries that already use the dollar extensively presumably do not lose much in terms of seigniorage, and the financial risk of banks and corporates associated with devaluation could be eliminated. As full dollarization is unlikely to be considered an option for CIS countries, the issue is beyond the scope of this paper.

[33] Uzbekistan may be a good example here. Administrative controls are extensive and measurable dollarization is therefore low. However, it is by no means evident that, as argued by some advocates of the Uzbek policy, the administrative controls enhanced economic performance. Certainly they contributed to spreads of black market rates over 100 percent until recently.

currency assets.[34] Without capital controls, the prohibition of foreign currency deposits would likely result in a move of foreign currency deposits abroad. Both would intensify financial disintermediation and result in a loss of official reserves.
On the operational side, the reserve requirement regime may provide a tool to affect dollarization. As pointed out by Ize and Levy-Yeyati (1998), it is important, though, that both deposit and loan dollarization is considered, since measures that reduce deposit dollarization may paradoxically encourage loan dollarization, which may have adverse prudential implications. To give an example, consider a rise in reserve requirements on foreign currency deposits combined with a reduction of reserve requirements on domestic currency deposits, in the absence of a remuneration differential on both types of reserves. The absorption of dollars and injection of local currency liquidity would change the internal interest rate differential in favour of the foreign currency, thereby having the perverse effect of increasing deposit dollarization and reducing loan dollarization.[35]

Regulatory measures that affect intermediation margins in domestic and foreign currency include ceilings on interest rates or quantitative limits on foreign currency deposits and lending. While limits on foreign currency deposits or foreign currency lending is bound to reduce dollarization—at least measurable dollarization—such measure may result in capital flight and financial disintermediation.[36] Interest rate ceilings on the other hand affect intermediation spreads. Suppose that the authorities remove a ceiling on domestic currency deposit rates. Since this measure would decrease the intermediation spread in local currency relative to foreign currency, it would reduce both deposit dollarization as well as loan dollarization.[37]

Medium-term measures

A sound banking system is key to both successful market based monetary policy implementation as well as instilling confidence. The early years of transition in the FSU were typically marked by the presence of too many banks that sooner or later had to fail. Other vulnerabilities included the presence of connected lending, insufficient experience in modern

[34] In addition, as we argued above, there is still insufficient supply of domestic currency assets that would permit portfolio diversification.

[35] Ize and Levy-Yeyati (1998) also find that the adoption of an inflation targeting regime can help to limit dollarization by reducing inflation volatility relative to real exchange rate volatility. At this time, however, this is not too relevant in the case of FSU countries.

[36] Both effects could reverse what we observe right now namely the return of capital to countries of the FSU, and continued financial deepening.

[37] The same result can be obtained if the remuneration on foreign currency deposits is lowered.

risk management techniques, and a weak regulatory framework. Nonetheless, foreign entry in domestic banking systems, the creation of supervisory frameworks that increasingly observe international best practice, as well as regional and international financial market integration have helped to mitigate these problems. It is important to point out, though, that proper implementation of modern regulatory frameworks is still an issue that needs to be addressed in most FSU countries. The increasing sophistication of financial instruments and markets more generally, also needs to be taken into account.

While the development of domestic currency instruments indexed to inflation or the exchange rate may facilitate de-dollarization—as in Chile, Mexico, Brazil and Israel—it may intensify downward pressure on the domestic currency during crises, as for example during the Tequila crisis. Indexation may also have undesirable real effects in that it may spillover into the labor market.

Long-term measures

Since dollarization has its roots in macroeconomic imbalances, the most powerful tool to reduce it is to restore confidence in the domestic currency and more broadly macroeconomic stability. As such, macroeconomic policies that will ensure long periods of low inflation and exchange rate stability are the single most important preconditions that help stabilize (as in many FSU countries) or reduce dollarization. As pointed out earlier, the development of domestic capital markets can facilitate the provision of alternative financial instruments for portfolio diversification.

V. Conclusions and Policy Implications

The main message of this paper is that the high and continued dollarization in FSU countries should not be viewed simply as a negative phenomenon, which, following much of the earlier literature, is associated with a history of hyperinflation, poor macro management, and sometimes eruption of a financial crisis. There is a positive side as well; some part of dollarization reflects agent's search for portfolio diversification. The absolute increase in dollar deposits observed after 1998 may reflect a growing confidence in the economies of the FSU and the banking system as monetary policy has broadly achieved its prime goals of bringing inflation down and maintaining the value of the domestic currency.

More concretely, the paper demonstrates three key points. First, dollarization levels have remained very high or even increased in the face of a strong improvement of economic fundamentals in the last four years or more. This finding is similar to what has been observed earlier in developing countries, and is commonly labeled "hysteresis" or persistence after causal factors have changed. Second, while we do not attempt to "explain" hysteresis econometrically but only accept its existence, we suggest that an additional factor behind high dollarization is the attempt by recently-free economic agents to diversify asset portfolios. The embryonic state of financial markets provides few instruments, and both dollar cash and dollar deposits are therefore attractive purely for diversification motives. The evidence we address is admittedly limited and tentative, but it is difficult to ignore the

implication that agents freely choosing to increase dollar deposits in growing and monetizing economies shows some return of confidence in the banks, and future policy management.

Third—and perhaps most at variance with earlier literature—we conclude that the high levels of dollarization **do not** significantly impede the effective conduct of monetary policy. The strongest evidence is the least sophisticated: all of these countries have very successfully achieved the prime goal of monetary policy, inflation control. While earlier literature generally held the view that because high dollarization led to unstable hence unpredictable money demand, conduct of monetary policy was stymied. Our conclusion is in line with the very recent study of Reinhart and Savastano which puts this hypothesis of the received wisdom to an empirical test across a large sample and finds it very much wanting. They find instead that inflation control is not less quickly achieved in highly dollarized economies than in others, and that money demand parameters are not in fact so unstable. The last we also observe in some initial calculations of velocity for FSU countries.

Nevertheless, it would be a mistake to infer from the above that all is well and dollarization is not a problem; as history has shown repeatedly—most recently in some Latin American countries—confidence can evaporate quickly, and dollarization becomes part of the problem very quickly. Though high dollarization in this region—as elsewhere—is not likely to be the direct cause of a financial crisis by itself, it can act as a very rapid transmission channel to exacerbate the crisis. Low monetization in FSU countries mitigates such effects, but does not eliminate them. The main mechanisms are easier capital flight for dollarized assets than domestic ones, withdrawal of foreign currency deposits or credit lines, and high bank system exposure to dollarized loans which become unpayable and/or blow up domestic currency debts if the exchange rate falls. As devaluation cannot reduce the dollar value of domestic financial assets, exchange rate adjustment is less effective.

Given the above risks, should FSU countries actively pursue policies aimed at reducing or eliminating dollarization? The authorities should continue to pursue policies that strengthen the financial system, thus draw more cash based assets into the banking system, and continue domestic capital market development or regional capital market integration. Most importantly, they should maintain macroeconomic stability to reduce the volatility of short-term capital flows and facilitate durable capital inflows, including the repatriation of capital, and foster growth and economic development. There are no "silver bullet" solutions that will reduce dollarization quickly and without other costs; hence, policymaking must take into account dollarization as a possible constraint, but not expect it can be removed for a long time to come.

Finally, a word about future research and data. Foreign currency deposits are clearly only part of the dollarization phenomenon, but we have argued here that when that is all that is available, it can be used as for most countries it would appear they are correlated with cash dollarization. Of course, where the latter are more widely available in time series, it would be folly to not use both. One reason is comprehensiveness of the estimates. But perhaps an even more important reason is that the two are not simply additive, but interact with each other in a complex way reflecting both the currency substitution and asset substitution motives. A

better understanding of the causes and consequences of dollariza tion requires in future a closer look at not only the stocks of each and their sum, but also the flows between them and vis-à-vis capital flight and return.

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