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Analyzing Balance-Sheet Vulnerabilities in a Dollarized Economy: The Case of Georgia

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IMF Working Paper

Middle East and Central Asia Department

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Abstract

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Balance-sheet analysis (BSA) complements traditional flow-oriented macroeconomic analysis by gauging mismatches in aggregate and sectoral balance sheets of an economy. Enabled by recent progress in data availability, this paper applies BSA to Georgia, focusing on currency mismatches. In reviewing developments over the last five years, the paper finds that the still-high level of dollarization continues to create financial vulnerabilities, but that the overall level of currency mismatch has fallen and that liquidity problems are unlikely, in part owing to a strengthening of sectoral *buffers*, *hedgies*, and *insurance* against shocks. Policy recommendations include accumulating reserves, strengthening securities markets, enhancing banking supervision, and maintaining a flexible exchange rate.

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I. INTRODUCTION

Several recent crises in emerging markets and developing economies were rooted in balance-sheet mismatches in certain sectors of the economy, including in the balance sheets of the government, the banking system and other financial corporations, or the private nonbank sector. In the aftermath of the former Soviet Union (FSU) collapse, for example, many FSU economies with low natural resource endowments became vulnerable as they quickly accumulated substantial amounts of public external debt—denominated mostly in foreign currency—to energy exporters. When the Russian crisis in 1998 was triggered by short-term government paper that was not rolled over, many central banks in the region were losing reserves quickly while maintaining their (quasi) pegs, but they were ultimately forced to adopt more flexible exchange rate regimes. The ensuing devaluations resulted in adverse consequences for growth, employment, and poverty. Other examples of macroeconomic crises triggered by the public sector include Mexico (1995), Argentina (2001), and the Dominican Republic (2002). In other cases, for example Thailand (1997), vulnerabilities spread from the private (financial) sector to trigger a full-fledged macroeconomic crisis.

Although the Russian crisis had a rather severe impact on Georgia, adopting a more flexible exchange rate regime in late 1998 may have removed one reason for a potential crisis going forward. With the Russian crisis spilling over into Georgia, the National Bank of Georgia (NBG) was forced, in early December 1998, to abandon its strongly managed float after almost two months of supporting the lari as the central bank's reserves reached a low of three weeks of imports of goods and nonfactor services.² The lari depreciated against the U.S. dollar until the end of 2003, when the trend was reversed.

At the same time, the high degree of dollarization in the economy continues to be a source of vulnerabilities—especially with regard to foreign exchange liquidity and solvency. Since the introduction of the lari in 1995, deposit dollarization rose from about 50 percent to more than 85 percent in 2003, before receding to about 72 percent by the end of 2005. Dollarization of commercial banks' assets has followed this trend with a lag, reaching 88 percent in September 2004 and, mirroring the trend on the liabilities side, decreasing by 11 percentage points since then owing to a credit boom that entailed stronger growth of lending in domestic as compared to foreign currency. Such highly dollarized balance sheets are vulnerable to possible exchange rate fluctuations, especially a depreciation of the domestic currency.

Balance-sheet analysis (BSA) aims to gauge vulnerabilities stemming from mismatches in the structure of liabilities and assets at a sectoral level and examine ensuing macroeconomic risks. Macroeconomic problems—for example, in the form of liquidity shortages—could

² In the event, the bilateral exchange rate against the U.S. dollar depreciated by almost 40 percent within a week and by about 70 percent between the end of October 1998 (before acute depreciation pressure on the lari arose) and the end of February 1999, inflating the domestic-currency value of the foreign currency-denominated debt stock. As a consequence, some commercial banks were forced to cease operations and GDP contracted by 2.6 percent in the fourth quarter of 1998 (year-over-year) and remained almost flat in the first quarter of 1999.

arise from sectoral mismatches between assets and liabilities with respect to their currency denomination—a financial mismatch that can expose borrowers to exchange rate risks.³ Other macroeconomic vulnerabilities can include maturity mismatches between assets and liabilities, capital structure mismatches (debt versus equity), and weak asset quality (credit risk). In times of crisis, these mismatches can be affected by interest rate and rollover risks, and be manifested as liquidity or solvency problems. Particular attention is being paid to how sectoral balance-sheet mismatches build up if liabilities are not matched by corresponding *intrasectoral* assets and, once unwound, transmit vulnerabilities from one sector to others through *intersectoral* balance-sheet linkages.

Stock-oriented BSA provides additional insights and complements more traditional macroeconomic vulnerability analysis based mainly on flow variables, such as fiscal and current account balances. It cannot, however, substitute for a dynamic analysis. Allen and others (2002) proposed the general framework for analyzing the interactions of sectoral balance sheets. Since then, BSA has been applied to several country cases, including Thailand (Daseking, 2003), Turkey (Keller and Lane, 2005), and Belize (Mathisen and Torres, 2005).⁴ Keller (2004) presents the case for a highly dollarized economy (Peru). Goldstein and Philip (2004) analyze recent emerging market crises from a currency-mismatch perspective. Although Georgia cannot be considered an emerging market—and comparing exposures in Georgia to those typically found in emerging markets is beyond the scope of this paper—the BSA can still help to highlight some of the sectoral linkages that could contribute to macroeconomic vulnerability.

Taking advantage of the detailed dataset based on the new standardized report forms (SRFs) for monetary statistics, this paper applies the BSA to Georgia paying special attention to currency mismatches and the associated risks, and describes some strategies to deal with potential solvency and liquidity problems. The next section provides some background on recent economic developments in Georgia, and Section III describes the analytical framework and data sources. The analysis of balance-sheet mismatches in Section IV focuses mainly on currency mismatches in sectoral Georgian balance sheets, paying special attention to potentially associated liquidity problems. This focus is warranted by the fact that dollarization is high and most of Georgia's international borrowing is multilateral and concessional, implying that, for example, the rollover and interest rate risks—more typical of emerging market economies—are rather contained. Hence, this paper does not report on or discuss aggregate (domestic and foreign currency) positions. Moreover, the available data on the (nonfinancial) private sector in Georgia are too sparse to enable one to analyze risks

³ A rollover risk describes the inability to refinance maturing debt, whereas an interest rate risk arises from the differential impact of interest rate movements on assets and liabilities, depending on the interest rate structure; see Rosenberg and others (2005) and Mathisen and Pellechio (2006).

⁴ See the survey in Rosenberg and others (2005) for a more complete list of recent applications.

deriving from imbalances in the structure of liabilities.⁵ Section V discusses general strategies to limit balance-sheet vulnerabilities and reviews how Georgia has addressed these vulnerabilities. Section VI concludes and presents a few policy implications.

The main finding of this paper is that from a BSA perspective, the macroeconomic vulnerabilities in Georgia are manageable, since the levels of currency mismatches are generally improving and a foreign-currency liquidity problem is unlikely. The high level of dollarization in Georgia continues to create currency mismatches and vulnerabilities to exchange rate shocks. The overall level of currency mismatches in the economy has been falling until very recently, although trends vary across sectors. Although still satisfactory, Georgia's overall liquidity position has deteriorated somewhat as the commercial banks' liquid foreign currency assets have fallen as a share of official reserves—a measure of coverage of potential current external and domestic payment requirements—while the economy's foreign currency liabilities have remained stable (as a share of official reserves). The main policy recommendations include accumulating further foreign reserves; facilitating the development of the domestic securities market; maintaining a flexible exchange rate; and continuing to strengthen prudential oversight, possibly by introducing additional regulations regarding banks' interest rate and market risk management.

II. BACKGROUND

Georgia is still recovering from the breakdown of the Soviet Union, but has managed to perform rather well over the last few years (Table 1). Although output and income per capita—slashed by civil unrest and hyperinflation in the early 1990s—are still below their levels in the late 1980s, the government managed to stabilize the economy owing to prudent monetary and fiscal policies. Since 2001, economic growth has picked up markedly, averaging 7 percent in real terms. Inflation has been in the single-digit range since late 1999—except for a short period in early 2005 and the most recent flare-up in mid-2006. The marked increase in the external current account deficit since 2003 is mainly related to imports of capital goods, including for two major pipeline projects. Notwithstanding these positive aspects, the fiscal situation in Georgia was dire until 2003: the budget was frequently subject to sequestration because tax revenue targets could not be reached, and the government accumulated domestic expenditure arrears, including on pensions and wages.

More than two years have passed since President Saakashvili led a bloodless revolution to take power in Georgia. During this period, his administration managed an impressive and sustained fiscal turnaround, enabling much-needed spending on priority items, such as infrastructural rehabilitation. Moreover, the government started an ambitious privatization program to strengthen private sector-led growth. This, together with official disbursements from multilateral as well as bilateral sources, continue to ease the fiscal financing constraint.

⁵ At the country level, financing current account deficits with debt (particularly short-term debt) rather than with foreign direct investment has typically been seen as generating greater crisis vulnerability.

The NBG pursues a flexible exchange rate regime, although pressures have emerged to contain exchange rate appreciation. The central bank mainly intervenes to smooth exchange rate fluctuations and accumulate international reserves, which have recovered to about two months of (nonpipeline-related) imports.

Table 1. Georgia: Core Economic Indicators, 2000–2006
(In percent change, unless noted otherwise)

	2000	2001	2002	2003	2004	2005	2006
	Actual					Prel. Est.	Proj.
Real GDP	1.9	4.7	5.5	11.1	5.9	9.3	6.4
Consumer price index (average)	4.0	4.7	5.6	4.8	5.7	8.3	5.3
(In percent of GDP)							
Net change in expenditure arrears	1.4	0.2	-0.4	1.4	-2.6	-0.9	-1.1
Overall balance (cash basis)	-2.6	-1.6	-1.9	-1.3	-0.2	-2.4	-2.2
Current account deficit	6.0	6.5	5.8	7.4	8.3	7.4	7.1
Current account deficit (net of pipeline imports)	6.0	6.5	5.5	2.8	3.5	4.1	5.8

Sources: Georgian authorities; and IMF staff estimates.

The political regime change had a strong positive impact on public finances—both directly and indirectly. Administrative measures to enforce collection of tax liabilities directly contributed to a jump in tax revenues from 14.5 percent of GDP in 2003 to 18.2 percent of GDP in 2004 and 19.8 percent in 2005. The government has cleared a substantial share of its domestic arrears in 2004–05 and is committed to repay the remainder soon. In a more subtle sense, the strong enforcement of tax collections contributed to capital inflows/repatriation as tax liabilities are payable in lari. Many taxpayers had to exchange foreign currency holdings, leading to a surge in demand for domestic currency on the foreign exchange market. As a result, the lari appreciated against the U.S. dollar and on a real effective basis by about 13 percent in 2004 and a further 3 percent in 2005.

Georgia's external debt is mostly concessional, denominated in foreign currency, and predominantly owed to multilateral creditors. After independence, Georgia quickly built up substantial external liabilities, mainly due to energy imports from other FSU countries (Turkmenistan, Russia). Since 1999, the external debt stock has slowly declined from close to 60 percent of GDP to around 46 percent of GDP in 2003 and—aided by the strong 2004 appreciation—is projected to drop further to about 23 percent of GDP by the end of 2006.⁶ Georgia's debt service payments have been rescheduled twice at the Paris Club, and Georgia is in the process of completing its negotiations with creditor countries (including non-Paris

⁶ See Appendix V in IMF (2006).

Club members) in the context of the second rescheduling agreement of July 2004.⁷ As of the end of 2005, about 60 percent of Georgia's external debt is held by multilateral creditors, of which the World Bank accounts for almost two-thirds. Most of the remaining debt is nonconcessional. The major bilateral creditors are Russia and Turkmenistan, which together represent two-fifths of Georgia's bilateral external commitments.⁸

Georgia's domestic-currency debt—about 7 percent of GDP—is almost exclusively held by the central bank. According to a recent agreement between the NBG and the ministry of finance, this stock of nonmarketable debt will be securitized at an annual rate of about GEL 40–50 million. Other than privatizations, the government's domestic financing need is mainly covered by fluctuations in deposits at the central bank.

Monetary policymaking in Georgia is governed by the organic *NBG Law*, which was adopted in 1995 and revised in 2001. The law requires the NBG to “achieve and maintain the purchasing power of the national currency, and price stability, and to ensure the liquidity, solvency, and market-based stable functioning of the financial and credit systems of Georgia.” Although the central bank law also pledges the NBG's operational and economic independence, the central bank served until recently as a source of financing (direct lending) for the government.⁹ Monetary policymaking using indirect instruments is severely hampered by the high degree of dollarization (see above) and the low stock of tradable securities. The securitization operation mentioned above is expected to enhance the NBG's liquidity management.

The *Law on Activities of Commercial Banks*—together with regulations from the NBG's banking supervision department—defines the activities of the small but growing banking system. At the end of 2005, deposits amounted to 10 percent of GDP, and private-sector lending to 15 percent of GDP. At present, 18 banks operate in Georgia, of which two are foreign subsidiaries and foreign shareholders have sizeable influence in many other banks, including three of the leading six commercial banks. More than 85 percent of the financial system's assets, liabilities, and deposits are held by the top six banks. Many of the other banks are niche players and do not contribute to financial sector development. The nonbank financial sector is very small and limited to a few credit unions and insurance companies. There are no controls on movements of capital into and out of Georgia.

⁷ The first rescheduling (2001) occurred on terms somewhat better than Houston terms. The second rescheduling, under the new Evian approach, is based on Houston terms with a goodwill clause.

⁸ About 5 percent of Georgia's external liabilities stem from state-guaranteed external borrowing by Georgian public companies from the European Bank for Reconstruction and Development (EBRD) and the German Kreditanstalt fuer Wiederaufbau (KfW).

⁹ In May 2006, parliament approved legislation that rules out direct lending from the NBG to the government.

The Georgian banking system has started to witness strong private sector credit growth as new business opportunities emerge and lending to the government has become less lucrative. The private nonbank sector in Georgia has in principle no access to foreign financing. Moreover, the stock market is shallow, leaving commercial banks as the only source of capital once internal financing has reached its limits. In 2005, credit from the commercial banking system to the private sector grew by 83 percent. Despite this rapid growth, prudential indicators do not yet show a deterioration of banks' lending portfolios and the sectoral composition of lending is rather stable. The stock of outstanding loans denominated in lari tripled, but about three-quarters of total loans are still denominated in foreign currency, down from almost 90 percent at the time of the regime change in late 2003.¹⁰

III. ANALYTICAL FRAMEWORK, KEY CONCEPTS, AND DATA

This paper focuses on a class of balance-sheet vulnerabilities particularly relevant in dollarized economies—*currency mismatches* (Figure 1). In their simplest form, these risks arise when borrowers' liabilities are denominated in a foreign currency but their assets are in domestic currency. Currency mismatches are subject to certain risks—such as sudden interest rate changes, exchange rate movements, or roll-over/credit risk. In the event of a sharp depreciation, for example, the foreign-currency value of assets decreases, whereas the value of liabilities remains constant. Moreover, foreign currency assets and liabilities could be of different maturity.

The concept *net foreign currency position*—defined as foreign currency assets minus foreign currency liabilities—can be viewed as an indicator of a sector's vulnerability to movements in the exchange rate. In general, a sector with a large negative (positive) position is vulnerable to exchange rate depreciation (appreciation).¹¹ Currency mismatches can be analyzed—as a financial mismatch—at the level of the country's aggregated balance sheet or at the level of intersectoral positions, and—as a maturity mismatch—by comparing short-term foreign currency assets and longer-term liabilities.¹²

These balance-sheet vulnerabilities—financial (aggregate and sectoral) and foreign-currency maturity mismatches—could result in demand for foreign exchange that may have a destabilizing macroeconomic effect. In an extreme case, this could lead to insolvency when

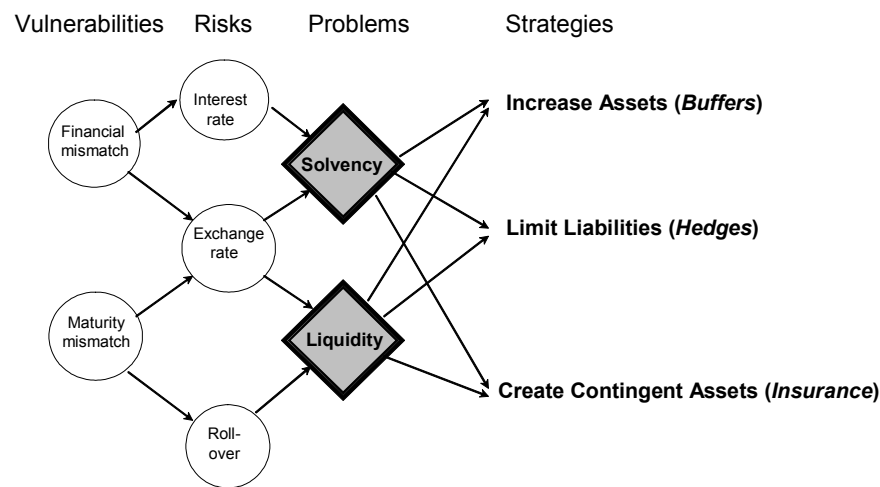
¹⁰ The degree of dollarization on the asset side roughly matches developments in commercial bank deposits. See Billmeier and Ding (2006) for a more detailed description of recent developments in the banking sector.

¹¹ Only financial assets, not real assets such as real estate, are included in the analysis. Also, off-balance-sheet items—for example, a sector's net exposure in forward markets—are only included in the analysis to the extent that the market values of such positions are reported as part of balance-sheet financial data.

¹² See Mathisen and Pellechio (2006) for a more complete discussion of vulnerabilities.

the assets are no longer enough to cover all liabilities, implying negative equity.¹³ But even with nominally positive equity, a mismatch of maturities of financial assets and liabilities denominated in foreign currency could create a rollover risk and ensuing liquidity problems, as borrowers could find it increasingly difficult to serve their (foreign currency) debt. Unless the vulnerabilities are somehow mitigated, these shocks—once triggered—can lead to substantial loss of real income, as evidence by the recent crises in Asia and Latin America. Consequently, countries are pursuing both direct and indirect strategies to minimize these balance-sheet risks.

Figure 1. Framework for Analyzing Balance-Sheet Vulnerabilities



Strategies to reduce the vulnerabilities posed by currency mismatches typically fall into three main categories: (i) increase available assets (buffers as cushion against, in principle, any shock); (ii) limit exposure, primarily in the form of containing net liabilities (hedging); and (iii) put in place mechanisms to provide contingent assets (insurance):

- *Buffers* generally consist of liquid assets (reserves), capital and positive foreign-currency cash flow.
- *Hedges* are mechanisms to reduce an economy's or sector's sensitivity to adverse shocks. Hedging can be particularly relevant to avoid maturity or currency mismatches (e.g., forward contract to hedge a future foreign exchange transaction) and limit rollover risks. Hedges in principle have symmetric payoffs (i.e. they offset gains as well as losses).

¹³ Solvency is often analyzed in terms of public sector debt sustainability—for example, by comparing government debt with government assets and the net present value of primary surpluses.

- *Insurance* are assets that are contingent on specific events and come at a (time-dependent) cost. Insurance mechanisms often have complex cost-benefit implications and can supplement buffers and complement hedges, which are often imperfect or incomplete.

Applying the BSA to Georgia has been made possible by substantial improvements in data quality and reporting by the Georgia authorities. The data underlying the analysis in this paper stem from both domestic Georgian as well as international sources (Figure 2):

- *Domestic data sources.* The bulk of the data are sourced from the banking system—the sectoral balance sheets of the central bank and the other depository corporations (ODCs, mainly commercial banks). The data are based on the new standardized report forms for monetary and financial private sector data, which present assets and liabilities by type of financial instrument,¹⁴ by sector,¹⁵ and by currency (national and foreign).¹⁶ Market prices or approximations of market prices (i.e., fair market values) are used as the general valuation principle for assets and liabilities. The banking system data are complemented with authorities’ data on—largely concessional—public debt denominated in foreign currency, which is assumed to be held by nonresidents. Georgia does not yet report an international investment position.
- *International data sources.* Loans by member banks of the Bank for International Settlements (BIS) are assumed to be captured in Georgian banking system data on liabilities to nonresidents. External liabilities of nonfinancial corporations are based on BIS member banks reports of loans to Georgian nonbanks and sourced from the Joint External Debt Hub (JEDH). Estimates on short-term external debt are sourced from the BIS.

Some data gaps remain, but these positions are believed to be negligible. In particular, non-trade related claims of nonresidents on the Georgian private sector—for example private external debt—are assumed to be small, as Georgian firms did not have, until recently, access to international financing without a sovereign guarantee. Consistent with their commitments

¹⁴ The instruments are monetary gold and SDRs, currency and deposits, securities other than shares; loans, shares other than equity, insurance technical reserves, financial derivatives, and other accounts payable/receivable.

¹⁵ The banking sector data are delineated by the following sectors: nonresidents, central bank, other depository corporations, other financial corporations, nonfinancial corporations (public and other), general government (central, state and local government plus social security funds), and other resident sectors (households and nonprofit institutions serving households).

¹⁶ With very few exceptions, foreign-currency assets and liabilities in Georgia are denominated in U.S. dollars. A share of the central bank’s international reserves and some sovereign debt, in particular that to the European Union (EU) and to EU member states, are denominated in euros. The euro is used more as a means of transaction but less as a storage of value.

in successive programs supported by the Poverty Reduction and Growth Facility (PRGF), the Georgian authorities did not offer such guarantees since the mid-1990s. Data are also not available for domestic nonfinancial sector's claims on nonresidents; these claims are also reportedly negligible. Similarly, data covering the general government's claims on the nonfinancial private sector and nonresidents—for example tax receivables—are not available, but are assumed to be inconsequential for a currency mismatch analysis as any such claims would most likely be denominated in local currency.

Figure 2. Georgia: Data Sources for Estimating Intersectoral Asset and Liability Positions

Holder of liability Issuer of liability (debtor)	Central bank	General government	Other depository corporations (banks)	Other private sector	Nonresidents
Central bank		Standardized report form 1R (Liabilities)	Standardized report form 1R (Liabilities)	Standardized report form 1R (Liabilities)	Standardized report form 1R (Liabilities)
General government	Standardized report form 1R (Assets)		Standardized report form 2R (Assets)	Public debt database	Public debt database
Other depository corporations (banks)	Standardized report form 1R (Assets)	Standardized report form 2R (Liabilities)		Standardized report form 2R (Liabilities)	Standardized report form 2R (Liabilities)
Other private sector	Standardized report form 1R (Assets)	Assumed to be negligible	Standardized report form 2R (Assets)		BIS/JEDH 1/
Nonresidents	Standardized report form 1R (Assets)	Assumed to be negligible	Standardized report form 2R (Assets)	Assumed to be negligible	

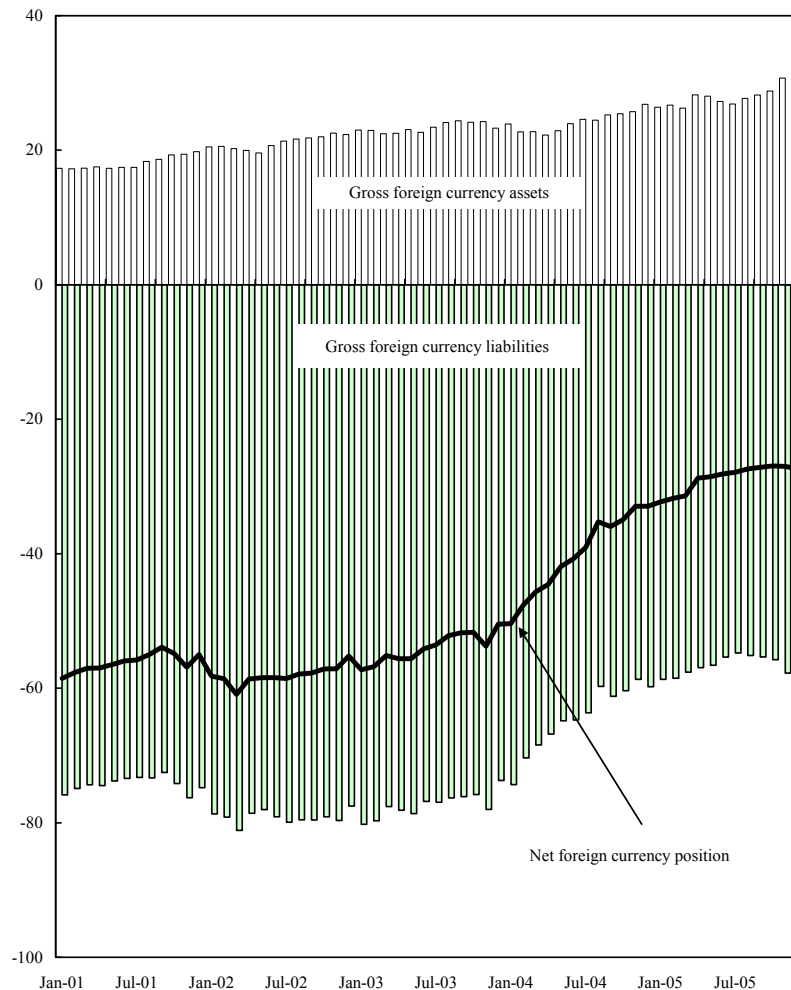
1/ Bank for International Settlements (BIS) and Joint External Debt Hub (JEDH).

IV. FOREIGN CURRENCY MISMATCHES IN GEORGIA

A. Aggregate Mismatch

The aggregate gross currency mismatch in the Georgian economy—which corresponds to the difference between foreign currency-denominated assets and liabilities—has steadily improved over the last few years (Figure 3). Georgia’s net exposure recovered to about 25 percent of GDP at the end of 2005 from about 60 percent of GDP in mid-2002. This reflects mainly a fall in public external debt in 2004–2005, but also a continued increase in foreign currency assets. Very recently however, the situation appears to have stabilized as foreign currency liabilities have again started to grow as a share of GDP.

Figure 3. Georgia: Overall Currency Mismatches, 2001–2005
(In percent of GDP)



Sources: Georgian authorities, Joint External Debt Hub (JEDH); and IMF staff estimates.

B. Sectoral Mismatches

Sectoral currency mismatches, instead, display dissimilar trends (Figure 4). In the following analysis, the NBG and the government—which form together the public sector—are not consolidated to better distinguish the significant balance-sheet changes that occurred during the past few years.

Public Sector (Nonconsolidated)

The central bank's net foreign currency position has slowly improved by about 8 percent of GDP since 2001 to some positive 5 percent of GDP (Figure 4, top left panel). This reflects both a slow decrease in foreign currency liabilities since mid-2002 as the use of Fund resources has declined by about 30 percent, and an increase in liquid foreign reserves to about 8 percent of GDP from about 5 percent of GDP.

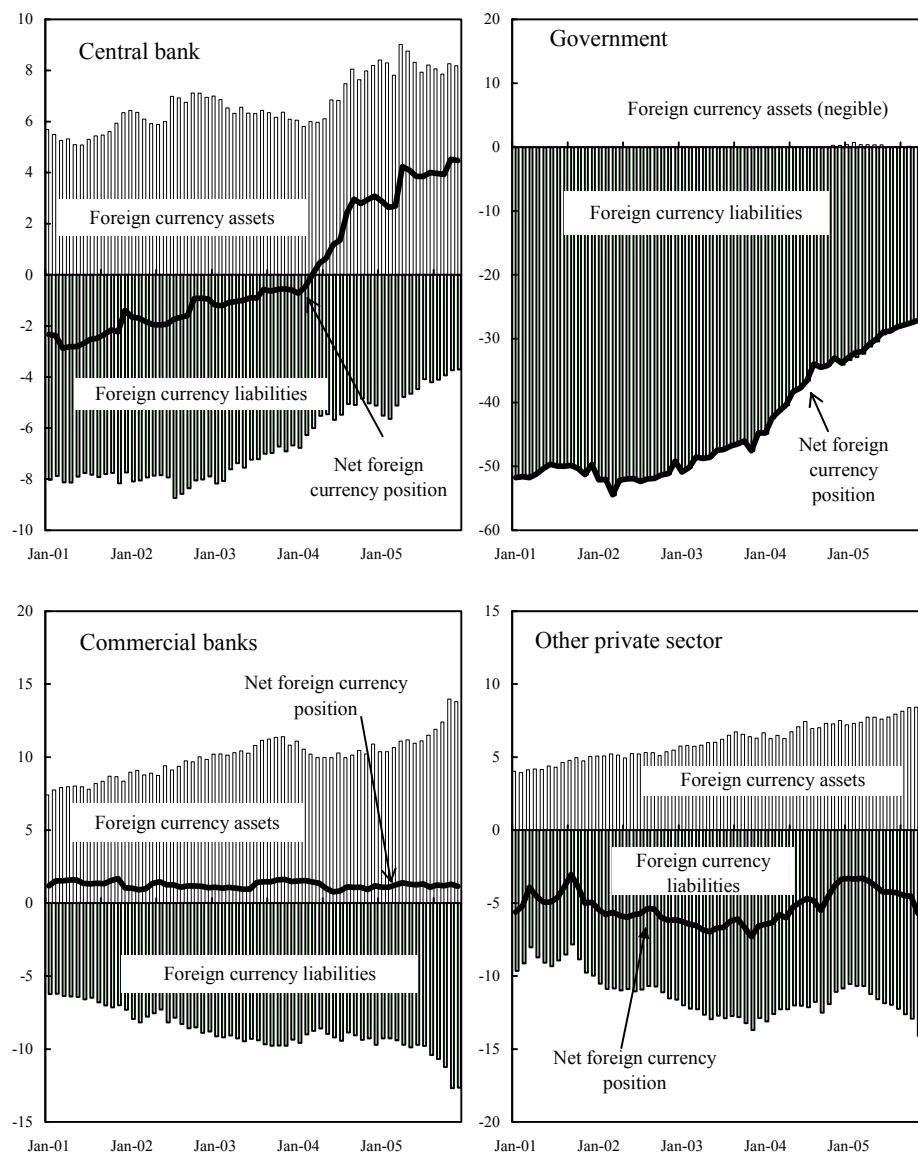
The recent build-up of international reserves by the central bank was to some extent driven by fiscal policy, but also—indirectly—by the substantial legalization of the economy.¹⁷ The largest purchases of foreign exchange by the central bank occurred during 2004 in response to strong capital inflows and pressure on the lari to appreciate—a result of stronger tax enforcement (discussed previously). By the same token, deposit dollarization declined by more than 10 percentage points in 2004 as companies and individuals were converting their U.S. dollar holdings into lari, reflecting an increase in official transactions in lari, which would likely have taken place in foreign currency in the shadow economy. Although the NBG in principle pursues a flexible exchange rate regime, political pressure had emerged in 2004 to contain the ongoing exchange rate appreciation. The central bank purchased large amounts of U.S. dollars on the foreign exchange market, leading to a doubling of international reserves during 2004 in nominal terms—and almost a quadrupling between mid-2001 and the end of 2005.

The government's net foreign currency position has improved more drastically since 2001 (Figure 4, top right panel). This reflects a reduction in public external debt (in percent of domestic-currency GDP). The recent appreciation contributed, after a slow decline between mid-2002 and the end of 2003, to the rapid drop of foreign currency liabilities during 2004. With a broadly stable exchange rate in 2005, the further reduction in 2005 was caused partly by large payments on external debt falling due, and partly by some early repayments enabled by the fiscal turnaround.¹⁸

¹⁷ See Billmeier and Fedorov (2006).

¹⁸ The major debt-stock reductions occurred vis-à-vis the IMF, the World Bank, the EU, and Turkmenistan.

Figure 4. Georgia: Overall Currency Mismatches by Sector, 2001–2005
(In percent of GDP)



Sources: Georgian authorities; Joint External Debt Hub (JEDH); and IMF staff estimates.

Notwithstanding the currency mismatch in the government's balance sheet, the position is not likely to create a liquidity risk. At present, the Georgian government has no major stock (or source) of foreign exchange assets, as its deposits at the NBG are mainly held in lari. One-off foreign-currency receipts from privatization are usually converted into lari on the foreign exchange market and then accumulated in the Treasury Single Account, from where government spending originates—including for government purchases abroad by reconverting lari into foreign currency. The government, however, also holds a balance—

averaging GEL 26.7 million in 2005—on its foreign currency account with the NBG. Once the oil and gas pipelines connecting the Caspian basin with the Mediterranean come on stream, transit revenues of about 1 percent of GDP over the medium term will accrue to Georgia—most likely, though, in the form of in-kind gas.¹⁹ On the liabilities side, most of the government's foreign currency debt is concessional, and predominantly owed to multilateral creditors, limiting the rollover risk. In the wake of the recent Paris Club rescheduling, some of the nonconcessional liabilities are in the process of been renegotiated, and the government has prioritized in-kind repayment of the debt to Turkmenistan.

Financial Private Sector

Owing to the prudential limit on commercial banks' foreign currency exposure, their net foreign currency position has remained stable and very small at around 1–2 percent of GDP (Figure 4, bottom left panel). Whereas foreign currency assets have increased from about 7 to about 12 percent of GDP, this has been offset by a similar buildup of liabilities from about 5 to 10 percent of GDP.²⁰

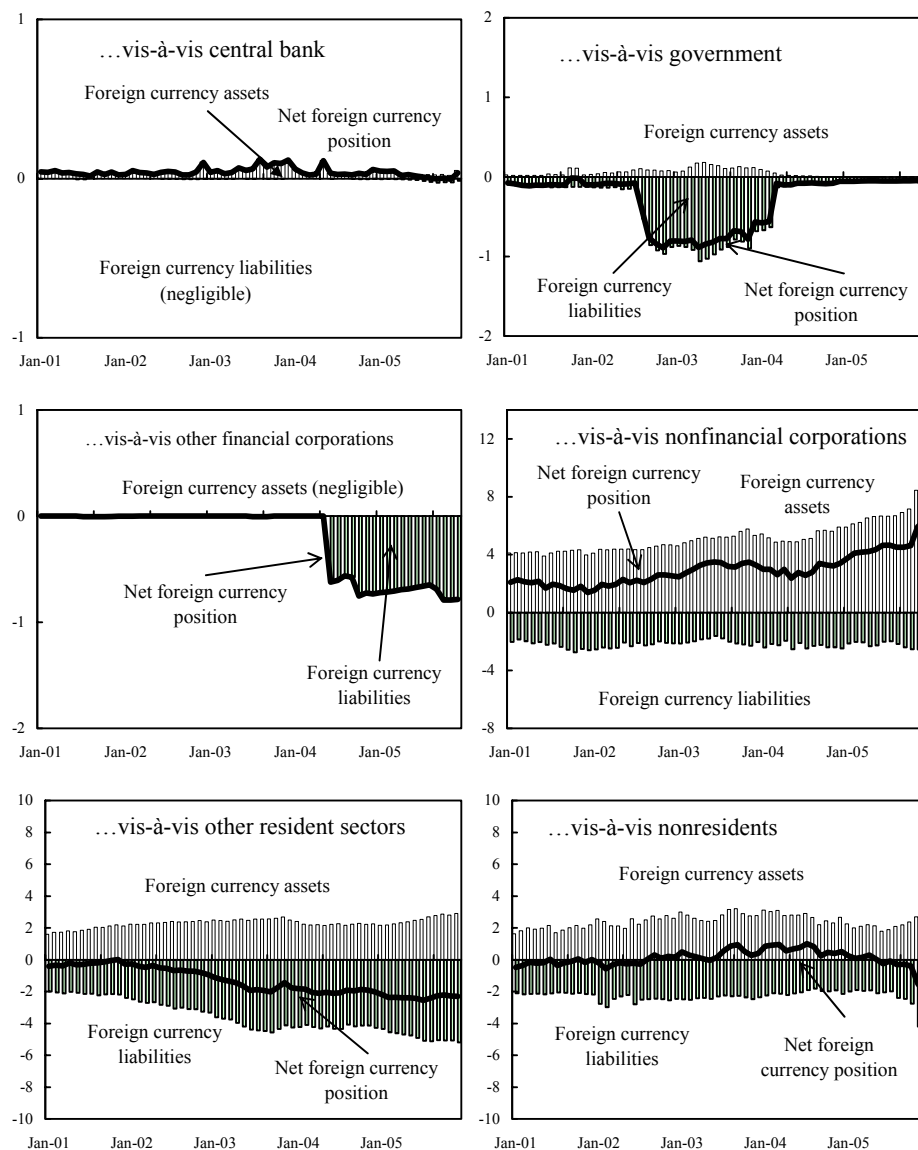
Commercial bank's balance sheets have expanded markedly, owing mainly to the recent credit boom. The banking system's assets grew by about 50 percent in 2005, mainly fueled by the rapid growth of lending to the private sector. In absolute terms, additional lending in foreign currency, about GEL 518 million, amounted to almost double new domestic-currency lending, but the growth rate of loans denominated in lari outpaced that of foreign-currency loans due to the lower base. Maturities of outstanding loans have increased during 2005 somewhat, as has the average loan amount.

The expansion in commercial banks' liabilities was fueled both by higher deposits and borrowing from abroad (Figure 5). Deposits held at commercial banks grew by 31 percent in 2005. By offering higher interest rates on lari-denominated deposits, commercial banks managed to attract lari deposits, but the degree of dollarization, at around 70 percent, is still high. Similar to developments on the asset side, the average maturity of deposits also increased somewhat. To finance additional lending, the leading banks have borrowed from abroad in foreign currency. A large part of this comes in the form of developmental financing mostly from international financial institutions (IFIs) including the EBRD and the International Finance Corporation (IFC), which makes it rather resistant to rollover risk. The larger banks, however, are starting to explore commercial borrowing abroad, unsecured and on market terms. So far, only two commercial bond issuances have taken place in Georgia, both in domestic currency.

¹⁹ See Billmeier, Dunn, and van Selm (2004).

²⁰ The sudden increase in assets and liabilities in late 2005 is related to an onlending operation to fund a privatization agreement. See also the bottom-right panel in Figure 4 and the center-right and bottom-right panels in Figure 5.

Figure 5. Georgia: Commercial Banks' Foreign Currency Positions by Sector, 2001–2005
(In percent of GDP)



Sources: Georgian authorities; Joint External Debt Hub (JEDH); and IMF staff estimates.

Nonfinancial Private Sector

The position of the remaining (other private) sector has improved slightly but remains modest and negative at around 5 percent of GDP (Figure 4, bottom right panel). Most of the improvement occurred in 2004 due to an accumulation of foreign currency assets and a reduction in foreign currency liabilities—reflecting again the appreciation of the lari. In 2005, both foreign assets and liabilities of the private nonbank sector grew at a similar pace.

Going forward, the somewhat lower interest rates on U.S. dollar-denominated loans could lead to a growing mismatch once the commercial banks gain better access to foreign capital and consumers are willing to borrow.

A breakdown of the nonfinancial private sector between households and the corporate sector is difficult due to the lack of data. The banking system is the best measure of mismatches in the nonfinancial private sector, because it is a mirror of mismatches in other sectors (see Roubini and Setser, 2004). In this vein, Figure 5 indicates commercial banks' foreign-currency liabilities vis-à-vis the corporate sector have remained broadly stable as a share of GDP (center-right panel), whereas they increased somewhat vis-à-vis households (bottom left panel). Commercial banks' foreign-currency assets, however, remained broadly stable vis-à-vis households, but increased vis-à-vis corporations—an indication that lending to corporations in the context of the recent credit boom occurred mainly in U.S. dollars.²¹

C. Maturity Mismatches

Besides the overall and sectoral foreign currency positions, the maturities of assets and liabilities add an important aspect to a country's balance-sheet vulnerabilities. In particular, the rollover risk—often defined as the inability to refinance maturing debts—of foreign-currency liabilities is important because it might cause liquidity problems. Traditionally, foreign-exchange liquidity positions are analyzed by comparing short-term external debt to the level of official foreign currency reserves. Often, however, nonresidents' deposits in domestic banks must be added to foreign short-term debt to fully identify the potential sources of external pressures on official reserves, although the external debt methodology specifies that these claims should already be included in external debt statistics.²² The next layer of pressures typically stems from commercial banks' foreign-currency liabilities to residents (e.g., foreign-currency deposits) which need to be contrasted with the availability of (liquid) foreign currency assets of the commercial banks. Finally, the short-term external debt (including nonresident deposits) plus residents' foreign currency deposits in domestic banks net of domestic banks' liquid foreign currency assets can be viewed as an “augmented ratio.” This ratio can be presented as a share of official reserves and viewed as an indicator of foreign currency risk—to what extent official reserves cover the potential current external and domestic payment requirements.

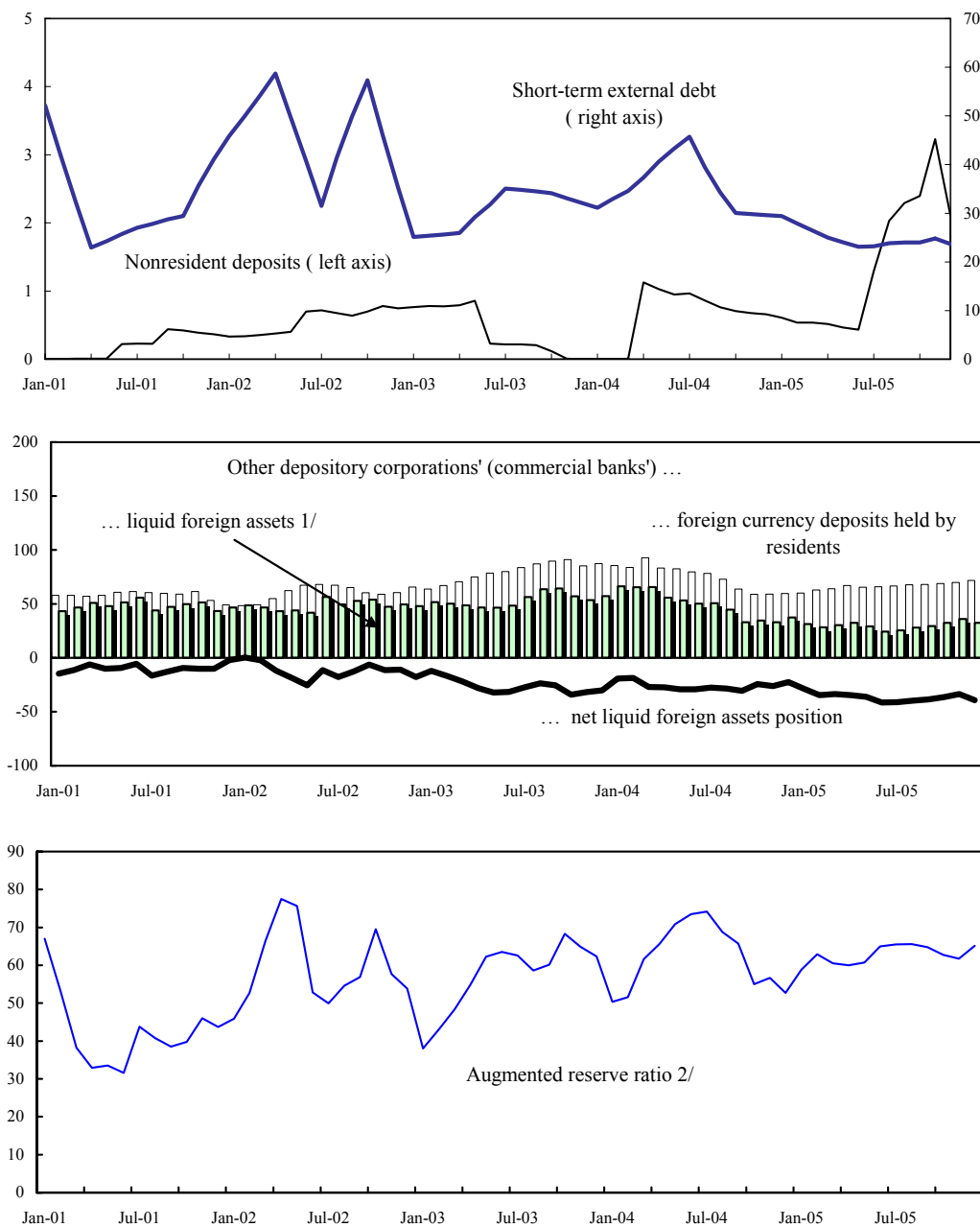
Georgia's short-term foreign-currency liquidity position (maturity mismatch) has continued to gradually deteriorate (Figure 6). In particular, the commercial banks' liquid foreign currency assets are falling (as a share of official reserves) while the economy's foreign currency liabilities have remained stable:

²¹ Detailed assessments for other sectors' foreign currency position by sector provide only limited additional insights due to data constraints—but are available on request from the authors.

²² See IMF (2003), Chapter 2.

- *Short-term external liabilities* (top panel) have fluctuated somewhat since 2001, but have generally remained between 30–40 percent of official reserves. For most of 2005, they have been below the 30 percent mark. The spike in nonresident deposits in late 2005 is related to a privatization operation—a major driving force of nonresident deposits more generally (see footnote 23). At less than 3 percent of reserves, nonresident deposits remain small and do not pose a liquidity problem.
- *Foreign currency deposits* (middle panel) in the banking system have decreased somewhat from the peak of around 80 percent of official reserves in late 2003 due to the strong increase in reserves in 2004—but are lately on a rising trend, reflecting the financing of the credit boom with cash from “under the mattress.” Commercial banks’ *liquid foreign assets* have recently fallen from about 60 percent of official reserves in late 2003 to about 30 percent of official reserves.
- Although the *augmented reserve ratio* (bottom panel) is characterized by strongly cyclical behavior, it appears to be on a rising trend, indicating a weakening liquidity position of domestic banks.

Figure 6. Georgia: Liquidity Analysis, 2001–2005
(In percent of international reserves)



Sources: Georgian authorities, BIS; and IMF staff estimates.

1/ Liquid reserves are defined as holding of foreign currency, transfer and other deposits (claims on nonresidents) in local and foreign currency

2/ Short-term external debt including nonresident deposits less other depository corporations' (i.e., mainly commercial banks) net liquid foreign assets

V. ADDRESSING BALANCE-SHEET VULNERABILITIES IN GEORGIA

Policymakers and economic agents in Georgia have applied all three strategies—buffers, hedges, and insurance—to contain balance-sheet risks (Table 2). Floating the exchange rate in 1999, for example, limited the risks related to another abrupt devaluation, especially by discouraging unhedged borrowing. Moreover, Article 21 of the *Law on Activities of Commercial Banks* entitles the NBG to impose conditions on the activities of a particularly crucial sector of the economy from a BSA perspective, including on (i) lending to a single borrower and the top ten borrowers; (ii) matching as to maturity and interest in respect of assets and liabilities; and, of particular relevance in the context of this paper, (iii) unhedged foreign currency exposures. In general, the strategies employed to address the macroeconomic vulnerabilities pertain both to the asset and the liability side of the sectoral balance sheets. Some strategies directly help contain currency mismatches, whereas other strategies contribute only indirectly to reducing potential liquidity and solvency problems.

A. Increasing Available Foreign Currency Assets (Buffers)

Over the last few years, a number of specific buffers have decreased Georgia's vulnerability—or that of specific sectors—against potential solvency and liquidity issues stemming from currency denomination mismatches:

- Since the end of 2000, the NBG has managed to more than quadruple its foreign currency reserves, which amounted to about 2.1 months of nonpipeline imports at the end of 2005. Owing to its small set of monetary policy instruments, however, the NBG's scope to sterilize its interventions in the foreign exchange market is limited, curbing the opportunity to accumulate further reserves without causing an adverse impact on liquidity.
- The NBG has reviewed some prudential requirements over the past few years to enable sustained development of the banking sector, while highlighting currency mismatches as a vulnerability. In 2002, the equity capital buffer was reduced, as minima for tier one and regulatory capital (as a share of total risk-weighted assets) were lowered from 12 percent and 15 percent to 8 percent and 12 percent, respectively. This coincided with a review and stronger enforcement of asset classification rules, however, which—together with a better alignment with international accounting standards—contribute to a more realistic representation of the economic situation of banks and, implicitly, the actual buffer. For example, the NBG introduced in September 2002 a provision according to which commercial bank loans in foreign currency receive a weight of 200 percent when calculating risk-weighted assets.
- Commercial banks, in turn, have also accumulated foreign reserves to enable them to remain liquid if customers decided to withdraw deposits denominated in foreign-currency. In total, the gross foreign currency assets of the commercial banks

increased by 195 percent—or more than US\$200 million—between the end of 2000 and the end of 2005.

- The rise in reserves falls short of the increase in foreign-currency deposits, however, thereby exposing the banking system more than in the past to a large deposit run. Still, these deposits represent a foreign-currency buffer the nonfinancial sector can draw on in times of crisis (assuming the banking system has sufficient overall foreign currency liquidity). Since the end of 2000, foreign currency deposits rose from 4 percent of GDP to 7¼ percent of GDP at the end of 2005.

Other measures in this context have served as indirect buffers that do not mitigate the foreign currency vulnerability directly, but exert a positive impact on the aggregate liquidity position:²³

- The government's fiscal efforts over the last two years—and especially the higher tax revenues—improved its flexibility on the spending side, and the deposits held at the NBG, corresponding to 1½ percent of GDP at the end of 2005, serve as a buffer against unforeseen (a priori domestic-currency) liquidity needs of the government.²⁴
- The accelerated increase since the end of 2003 of banks' required minimum capital to GEL 12 million by the end of July 2007 (initially planned for the end of 2008) contributes to a healthier banking system that is less prone to ailing banks in the case of a shock. Moreover, new market entrants are obliged to meet the full requirement even if they start operations before July 2007.

B. Limiting Liabilities and Overall Exposure (Hedges)

Hedges also contribute to limiting various balance-sheet vulnerabilities:

- Georgia's foreign currency public sector debt is rather well-shielded from shocks, with fixed interest rates, mainly long maturities, and specific commitments of the Georgian authorities (e.g., no guarantees for private external debt).
- The low exposure to currency and rollover risk in the banking sector is partly due to prudential requirements—a limit on the open foreign exchange position in place since 2002—and partly based on banks' lending decisions. Similar dollarization ratios on the asset and liability side contribute to a better hedge. Longer loan and mortgage maturities are made possible by an increasing stock of long-term savings, triggered by higher interest rates on the corresponding accounts.

²³ The distinction can matter at times of crisis, for example if the foreign exchange market does not work.

²⁴ More recently, at the end of May 2006, deposits have reached GEL 297 million, or 2.3 percent of forecasted 2006 GDP.

Table 2. Georgia: Strategies Against Balance Sheet Shocks, 2001–2005

Sectors	Increasing Assets (Buffers)	Limiting Liabilities (Hedges)	Create Contingent Assets (Insurance)
Public Sector (incl. Central Bank)	Since Dec. 2000, gross foreign reserves of the NBG increased from US\$109 million to US\$474 million	Commitments under the PRGF regarding non-concessional medium- and long-term external debt	Exogenous Shock Facility under PRGF
	Government deposits at the NBG increased from 0.4 percent of GDP at the end of 2003 to 1.6 percent of GDP at the end of 2005	Commitments under the PRGF regarding guaranteeing of private sector external debt	Paris Club rescheduling in 2001 and 2004
		Long maturities (concessional lending)	
		No short-term public external debt (PRGF commitment)	
Banks/ Financial System		High share of fixed-interest rate debt	
	Foreign exchange holdings tripled between the end of 2000 and the end of 2005	Prudential limit on open forex position of 20 percent of capital	Traditionally high collateralization of lending (but declined recently)
	Minimum capital requirement for commercial banks raised from GEL 5 million to GEL 12 million by July 2007	Increased lari-based lending to match currency structure of asset with liability side	Private debt mostly at fixed interest rate
	In 2002, introduction of 200 percent weighting for foreign currency loans when calculating risk-weighted assets	Increased mortgage lending accompanied by longer-term savings accounts	Foreign-currency credit lines with IFIs and increasingly private banks (often under IFI guarantees) NBG serves as lender of last resort for illiquid
Corporate/ Household Sector			
	Holdings of foreign-currency denominated deposits at commercial banks rose from 4 percent of GDP at the end of 2000 to 7.3 percent of GDP at the end of 2005	Natural hedges for some exporters; domestic corporate pricing strategy often based on U.S. dollar at the daily exchange rate. Many households receive foreign-currency remittances	Deposit insurance scheme (planned) NBG serves as lender of last resort for illiquid banks

- In the nonfinancial private sector, many businesses still face a currency risk, as their cash flow is not necessarily in foreign currency. To shield themselves from direct currency risks, some businesses—including in the service sector—quote their prices in U.S. dollars, payable at the daily exchange rate. While passing on the proper currency risk, these businesses remain, however, subject to an indirect credit risk if the debtor does not have a cash flow in foreign currency.
- Some parts of the nonfinancial private sector may be hedged against currency risks. Many households in Georgia receive remittances from abroad, which are usually denominated in foreign currency.²⁵ In the case of a depreciation, this income flow would increase in (domestic-currency) value, thereby easing the burden of a possible currency mismatch. The exporting sector, instead, benefits from a different, natural hedge against exchange rate fluctuations. In the case of a depreciation, the currency mismatch would lead to higher borrowing costs, but, at the same time, domestic producers would be more competitive on world markets and might attract additional business.

C. Creating Contingent Foreign Currency Assets (Insurance)

Insurance mechanisms can help offset the vulnerabilities posed by foreign currency mismatches, in particular by increasing resilience with respect to rollover and credit risks:

- Georgia has reached two agreements with the Paris Club on rescheduling its outstanding debt, including some arrears it accumulated in the run-up to the 2004 rescheduling.²⁶
- Moreover, Georgia could apply to the IMF's recent Exogenous Shock Facility (ESF) within the PRGF Trust or request an augmentation of the existing program in case adverse shocks to the rollover and credit risk would worsen Georgia's balance sheet.
- The banking system is developing strategies comparable to insurance, including quickly accessible credit lines from IFIs or private consortia under IFI guarantees. These strategies do not create contingent assets in the strict sense, though.

²⁵ Estimates of the size of remittances to Georgia in recent years vary between 4 and 10 percent of GDP. For 2005, the NBG indicates that remittances through official channels (i.e., banks and fast money transfer services) amounted to about 6 percent of GDP. The actual volume of transfers is estimated to be higher though, as informal channels are not recorded.

²⁶ Although the Paris Club is clearly not to be considered as insurance, it has very similar implications for countries that apply for a rescheduling once their external debt situation has become unsustainable.

- Moreover, the introduction of a deposit insurance scheme has been discussed in Georgia for about two years. This scheme could enhance trust in the banking system by protecting (foreign currency) saving deposits in case a bank fails. It would serve as insurance against shocks for all three sectors—directly by safeguarding households' balance sheets, and indirectly by lowering the risk of system-wide bank runs and government bail-outs. On the other hand, limiting the coverage of deposit protection to deposits held in domestic currency could indirectly contribute to lowering dollarization and, implicitly, currency mismatches by providing further incentives to hold savings deposits in domestic currency. It is important, however, that the banking sector be in good shape before introducing such a scheme, so as to not deplete the fund immediately.

Also in the context of insurance, there are strategies that mitigate liquidity problems although they do not directly address the currency mismatch. An example in domestic currency is the NBG's lender-of-last-resort (LOLR) function, which serves as an insurance device for illiquid commercial banks, thereby benefiting in the case of a crisis both the bank in need of capital, and the bank's stakeholders—including depositors.

VI. CONCLUSIONS AND POLICY IMPLICATIONS

This paper explores Georgia's vulnerabilities from a balance-sheet perspective, focusing especially on currency mismatches in light of the high level of dollarization. At the end of 2005, Georgia's gross overall foreign exchange exposure (liabilities) amounted to around 60 percent of GDP, of which roughly half is due to public external debt. The NBG and the banking system hold foreign currency assets on the order of 7 percent and 15 percent of GDP, respectively. The likelihood of an overall liquidity and solvency problem appears moderate—but the current situation could deteriorate quickly given the small size of the economy and the still-rather-low level of reserves.

While overall foreign currency vulnerability has decreased over the last five years, progress has been uneven across sectors. The government has made major progress in reducing its exposure, owing in part to the strong appreciation of the lari since early 2004. The NBG has contributed to a stronger position by accumulating reserves. In the financial sector, however, the liquidity position has deteriorated somewhat recently, since banks' liquid foreign currency assets have been falling (as a share of official reserves).

The main policy recommendations of this analysis are the following:

- *Strive for prudent fiscal policies and reexamine the trade-offs associated with different public debt strategies.* Foreign currency proceeds from the privatization process will decline, and fiscal deficits will have to be financed in other, noninflationary ways. A program to start issuing treasury bills again would reduce the government's foreign currency exposure, since treasury bills can be issued in domestic currency.
- *Continue to accumulate foreign reserves in both the central bank and the commercial banking system while containing reserve money growth.* Higher foreign currency

holdings will bolster Georgia's ability to withstand shocks to the interest and exchange rates, and to roll over existing obligations. This is especially important as repayments of outstanding debt will take their toll on Georgia's foreign exchange position. To maintain low inflation, it is important, though, that reserve accumulation does not result in an overly expansionary monetary stance (as it did in late 2004).

- *Develop domestic securities markets.* In the short run, primary and secondary markets for central bank and government securities will enable the NBG to improve its conduct of monetary policy. The possibility of sterilizing its interventions in the foreign exchange market would facilitate the NBG's aim of accumulating foreign reserves without resulting in rather abrupt changes in liquidity and the ensuing consequences for inflation. In this context, the authorities should consider not repaying the securitized debt held by the NBG when it falls due to increase the amount of monetary instruments. Moreover, by developing primary debt instruments denominated in lari, the public sector will be able to better match the denomination of its debt with that of its revenue. In the longer run, developing a private bond market and a liquid equity market would provide a wider range of financing sources to Georgian companies and, at the same time, could contribute to reducing the exposure of the private sector.
- *Strengthen prudential oversight.* Especially in light of the ongoing credit boom, the NBG will have to carefully supervise commercial banks that operate in Georgia to ensure that the current environment does not aggravate the foreign currency mismatches in the economy. Limiting the fallout from an overheating credit boom requires—but may not be limited to—strict enforcement of the regulatory framework already in place. Moreover, the NBG may consider introducing additional prudential limits not covered at present—for example, on interest rate and market risks, or on foreign currency lending to the nontradables sector.
- *Further reduce the incentives for unhedged borrowing.* Maintaining a flexible exchange rate is an important measure to raise the private sector's awareness of currency risks. Moreover, additional prudential requirements could aim to strengthen the role of hedges in financial transactions. Development of new financial products—including options trading—will enable private companies (and possibly households) to shield themselves better from currency fluctuations.
- *Take actions to decrease the degree of dollarization* of the economy, thereby lowering commercial banks' foreign currency exposure. Building trust in the Georgian banking system and promoting the use of the lari are cornerstones of a market-driven approach to dedollarization. If, after a prolonged period of sound monetary and fiscal policies, dollarization appears intrinsic, the Georgian authorities could consider other ways to tackle the phenomenon of dollarization hysteresis.

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