

## Ukraine: Selected Issues

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**International Monetary Fund  
Washington, D.C.**



INTERNATIONAL MONETARY FUND

UKRAINE

**Selected Issues**

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October 4, 2004

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## I. A SNAPSHOT OF SOME ECONOMIC ISSUES

### A. Growth and Inequality<sup>1</sup>

1. **Given Ukraine’s remarkable recovery over the past few years, a key concern is how the benefits of growth have been distributed.** Statistics on income distribution in Ukraine are not easily available. The authorities do not regularly publish data on the division of household income, and instead rely on surveys of consumption expenditure. Moreover, the coverage of these surveys is somewhat limited; sampling only 60-70 percent of the population, and typically failing to reach any households with consumption over Hrv 500/month. While the most recently-published Gini coefficient for Ukraine—based on a 1999 consumption survey—indicated an income/consumption distribution similar to that of most Scandinavian countries, this measure may have been biased, owing to statistical difficulties accounting for Ukraine’s large shadow economy, along with problems in properly measuring the behavior of the wealthy.

2. **Nonetheless, data on recent income and consumption trends in Ukraine suggest that the recovery’s impact on inequality has been mixed** (Table 1). Geographically, inequality seems to have declined slightly.

Although incomes tend to be higher in urban/industrial regions, wages in rural regions have been slowly catching up. From the consumption data, although consumption levels for the bulk of the population are still somewhat low, economic growth seems to have improved living standards for all Ukraine’s citizens.

However, looking at the increasing coefficient of variation, it appears that the gap between the rich and the poor has widened slightly.

Table 1. Ukraine: Income and Consumption, 1999-2003

	1999	2000	2001	2002	2003
Ratio of regional average wage to nationwide average wage					
Industrial 1/	118	120	118	117	115
Mixed 2/	89	86	87	87	88
Rural 3/	74	73	73	74	76
Percent of population with monthly average consumption (In hryvnias)					
Under 120	41.7	24.2	18.8	14.1	7.9
120 - 240	46.2	51.7	48.5	47.7	42.8
240 -360	12.1	24.1	21.4	23.9	28.3
Above 360	0	0	11.3	14.3	21.0
Per capita consumption (In hryvnia)					
Mean	154.0	196.1	222.3	242.9	281.2
Median	134.1	169.1	188.9	206.8	238.1
Coefficient of variation 4/	0.56	0.59	0.62	0.62	0.63

Sources: State Statistics Committee; and staff estimates.

1/ Includes: Dnipropetrovsk; Donetsk; Zaporizhyya; Luhansk; Odessa; Kharkiv; City of Kyiv; City of Sevastopol.

2/ Includes: Vinnytsya; Kyiv; Lviv; Mykolayiv; Poltava; Kherson; Cherkasy.

3/ Includes: Crimea (AR); Volyn; Zhytomyr; Zakarpattya; Ivano-Frankivsk; Kirovohrad; Rivne; Sumy; Ternopil; Khmelnytskyi; Chernivtsi; Chernihiv.

4/ Coefficient of variation is the ratio of the standard deviation to the sample mean. Estimate assumes that consumption follows a log-normal distribution.

<sup>1</sup> Prepared by Andrew Tiffin.

## B. The Energy-Sector Quasi-Fiscal Deficit<sup>2</sup>

3. **Given their size and importance, the financial health of Ukraine's (largely publicly-owned) energy firms is a matter of macroeconomic significance.** Historically, such firms have often been forced to operate at a loss; owing to regulated tariffs below full cost recovery, as well as poor enforcement of payments collection. Such losses can be classified as quasi-fiscal activities—defined here as operations carried out by public enterprises that would not prevail in a competitive market without government intervention.

4. **Over the past few years, however, the situation in Ukraine's energy sector has improved markedly.** For the most part, this reflects a dramatic increase in payments collection (Table 2). In addition to the energy companies' more disciplined approach to enforcement, rapid economic growth has provided many energy consumers with higher revenues and better access to short-term financing. Moreover, growing domestic production has increased the relative importance of the industrial sector—where tariffs are highest—and so has helped increase average energy tariffs. For the electricity and gas sectors, tariffs now fully cover the energy firms' short-run costs.

Table 2. Ukraine: Cash Payments within the Energy Sector, 2000-04  
(In percent of total sales)

	2000	2001	2002	2003	2004 1/
Consumed natural gas	49.2	87.1	88.9	91.1	95.2
Consumed electricity	58.1	75.5	87.3	92.7	94.6

Source: Ministry of Economy.  
1/ January-July.

5. **The most dramatic improvement has been in the gas sector.** Whereas the public monopoly (Naftogaz) had traditionally been Ukraine's largest tax debtor, in 2003 the company managed to keep current on its obligations, as well as clear its external arrears to Turkmenistan. The changing situation, along with the availability of more detailed data, has prompted the staff to reconsider its estimate of the gas-sector quasi-fiscal deficit (QFD). The new estimates are provided in Table 3. Overall, the energy-sector quasi-fiscal deficit has declined steadily over the past few years, and has been essentially eliminated in the gas sector.

6. **These estimates, however, are partly calculated using the difference between tariffs and our estimate of direct short-run costs.** Instead, if longer-run economic costs were used as a benchmark, the estimated quasi-fiscal gap would be larger—as large as 1-2

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<sup>2</sup> Prepared by Andrew Tiffin.



percent of GDP in both the electricity and gas sectors in 2003.<sup>3</sup> In this case, rather than reflecting direct financial losses, the gap would represent an implied transfer to consumers at the expense of Ukraine's energy-sector investment needs.

Table 3. Ukraine: Fiscal and Quasi-Fiscal Operations in the Energy Sector, 2001-04

	2000	2001	2002	2003	2004 Proj.
	(In percent of GDP)				
Quasi-fiscal deficit in the energy sector	4.0	2.1	1.2	0.6	0.2
Gas	1.8	0.5	0.3	0.1	-0.3
Electricity	2.4	1.5	0.8	0.5	0.4
Heat	-0.2	0.1	0.1	0.1	0.1
Direct fiscal expenditure (subsidies and tax arrears)					
Coal	1.2	1.2	1.3	1.2	1.2
<i>Memorandum items:</i>					
Average gas tariff (\$ per thousand cubic meters)	40.4	43.9	44.2	47.5	50.8
Average electricity tariff (US cents per kWh)	2.7	3.0	3.1	3.3	3.3

Sources: Ministry of Economy and European Integration; Naftogaz; and Fund staff estimates and projections.

### C. The Impact of Oil Prices on Ukraine's External Balance<sup>4</sup>

7. **Given Ukraine's status as a large net energy importer, the recent surge in the world price of oil raises the question of the likely impact on its external accounts.** In 2003, energy imports made up 35 percent of Ukraine's total import bill, and its energy trade deficit amounted to 2.5 percent of GDP. While natural gas is a substantial component of Ukraine's energy trade, trade in oil and oil products dominates. It may thus be conjectured that the recent large increases in world oil prices could adversely impact Ukraine's external accounts.

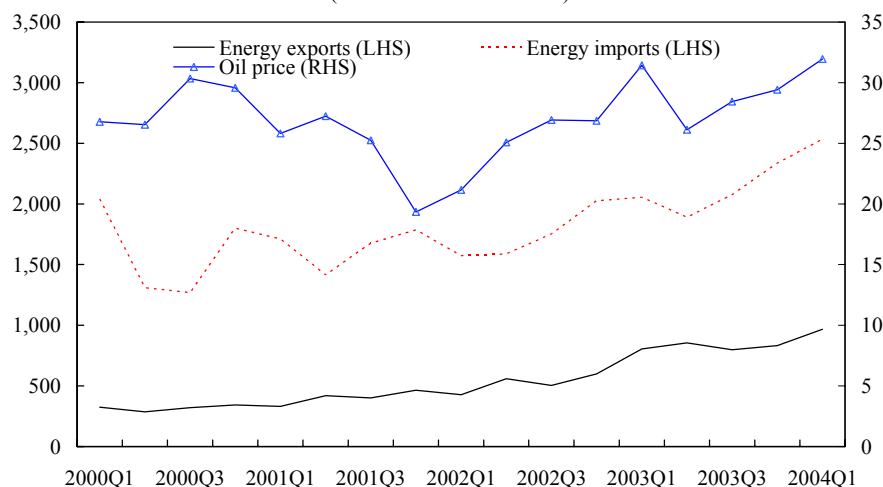
8. **While the average differential between world oil prices and Ukraine's oil import price has been changing over time, the overall correlation between the two series has remained broadly unchanged.** Since the partial liberalization of oil trade in early 2002, there has been a noticeable widening of the differential between Brent prices and the average price of (lower quality) Ukrainian imports. However, the overall correlation between world

<sup>3</sup> This estimate is based on a comparison between current tariffs and the cost benchmarks used by the World Bank in recent studies of both the gas and electricity sectors. In the gas sector, the benchmark is the effective import price of Turkmen gas (\$54/tcm). In the electricity sector, the benchmark is the tariff that would be required for Ukraine to implement its investment program for 2004-2010 (3.9 cents/kWh).

<sup>4</sup> Prepared by Ioannis Halikias.

and import prices has remained very strong. Moreover, the transmission lag from world to import prices is relatively short, with the bulk of the impact felt within a quarter; this justifies focusing statistical analysis on contemporaneous correlations.

Figure 1. Energy Trade and Oil Prices, 2000-04  
(In millions of U.S. dollars)



Sources: Ukrainian authorities; and Fund staff estimates.

9. **Because of the large share of energy in Ukraine’s trade, the sensitivity of its overall import bill to oil price changes is high.** Simple statistical analysis suggests that the effect in question is statistically significant and economically meaningful. The point estimate of the oil price variable suggests that a price increase of US\$10 per barrel adds some US\$500 million to Ukraine’s total (detrended) imports on a quarterly basis, equivalent to more than 15 percent of Ukraine’s 2003 annual energy imports.

Table 4. Ukraine: Impact of Oil Prices on Imports, 1996Q1-2004Q1

	<i>Coefficient</i>	<i>Standard error</i>	<i>t statistic</i>
Intercept	2299.11	608.39	3.78
Trend	48.59	25.51	1.90
Oil price	50.30	20.70	2.43
<i>Regression statistics</i>			
R Square	0.42		
Standard Error	871.7		

Source: Fund staff estimates.

10. **Two factors tend to offset the direct impact of higher oil prices on Ukraine’s current account.** On the trade side, higher oil prices tend to strengthen economic activity in Russia, a key destination of Ukraine’s exports. This in turn tends to boost external demand for Ukrainian products. On the service side, higher oil prices render road and rail

transportation of oil between Russia and Ukraine profitable, raising Ukraine's transportation receipts.

11. **The impact of higher oil prices on Russian import demand more than offsets the direct impact on Ukraine's oil imports, resulting in an improvement in Ukraine's trade balance.** This effect is statistically significant and economically meaningful, with an increase in oil prices by US\$10 per barrel estimated to strengthen Ukraine's quarterly trade balance by over US\$400 million. Controlling for Russia's nominal or real GDP<sup>5</sup> suggests that the impact of higher oil prices on Russia's economic activity is largely responsible for this result: while the direct impact of higher oil prices on Ukraine's trade deficit now turns out negative (but only marginally significant), the effect of Russia's GDP turns out strong and statistically significant.<sup>6</sup>

Table 5. Ukraine: Impact of Oil Prices on the Trade Balance, 1996Q1-2004Q1

	<i>Coefficient</i>	<i>Standard error</i>	<i>t statistic</i>
Intercept	-1376.15	287.15	-4.79
Oil price	41.35	8.65	4.78
<i>Regression statistics</i>			
R Square	0.44		
Standard Error	413.1		
	<i>Coefficient</i>	<i>Standard error</i>	<i>t statistic</i>
Intercept	-824.27	266.06	-3.10
Oil price	-29.84	16.50	-1.81
GDP Russia	0.28	0.10	2.88
<i>Regression statistics</i>			
R Square	0.60		
Standard Error	250.2		
	<i>Coefficient</i>	<i>Standard error</i>	<i>t statistic</i>
Intercept	-2318.96	690.00	-3.36
Oil price	-36.97	19.52	-1.89
Real GDP Russia	1.00	0.42	2.36
<i>Regression statistics</i>			
R Square	0.53		
Standard Error	276.8		

Source: Fund staff estimates.

<sup>5</sup> A two-stage procedure entailing the estimation of the impact of oil price changes on economic activity in Russia as a first step yielded very similar results.

<sup>6</sup> Collinearity between the explanatory variables would argue for a longer sample to ensure consistent parameter estimates. Such an approach, however, would have entailed including the early year of the transition, with structural breaks in the underlying relations rendering the empirical results questionable.

12. **Higher transportation receipts in the wake of an oil price increase also provide a (partial) offset to the adverse impact on Ukraine’s import bill.** The empirical results suggests a positive and statistically significant impact, with an increase in oil prices by US\$10 per barrel raising service credits by US\$175 million on a quarterly basis, or 5 percent of the Ukraine’s 2003 annual transportation receipts.

Table 6. Ukraine: Impact of Oil Prices on Services Receipts, 1996Q1-2003Q4

	<i>Coefficient</i>	<i>Standard error</i>	<i>t statistic</i>
Intercept	913.41	117.75	7.76
Trend	1.28	1.00	1.28
Oil price	17.58	8.54	2.06
<i>Regression statistics</i>			
R Square	0.10		
Standard Error	150.8		

Source: Fund staff estimates.

13. **Overall, the empirical analysis points to a positive net impact of an oil price increase on Ukraine’s current account.** While full disaggregated data are not yet available, this empirical pattern could partially account for the marked improvement in Ukraine’s external balance this year.

#### D. EU Enlargement: The Impact on Trade with Ukraine<sup>7</sup>

14. **The recent enlargement of the EU could impact Ukraine’s trade: both the pre-enlargement EU (EU15) and the new accession countries have constituted important destinations for Ukraine’s exports as it rebounded from its 1998 financial crisis.** In particular, Ukraine’s exports to EU15 have expanded steadily, growing at an average annual rate of 17.5 percent over 1998-2003 (Table 7). Exports to the accession countries, while stagnating toward the end of the 1990s, rebounded strongly thereafter, registering

Table 7. Ukraine: Exports, 1998-2003  
(In percent)

All exports	
Cumulative growth	49.3
Exports to EU15	
Cumulative growth	104.7
Contribution to growth	13.0
Share in exports (2003)	17.0
Exports to EU accession countries	
Cumulative growth	107.7
Contribution to growth	10.8
Share in exports (2003)	13.9

Source: National Bank of Ukraine; and Fund staff estimates.

<sup>7</sup> Prepared by Ioannis Halikias.

average annual growth of 18 percent over the same period. By 2003, combined exports to EU15 and to the accession countries had accounted for about a third of Ukraine's total exports.

15. **The possible impact of EU enlargement on Ukraine's exports can make itself felt through a number of channels, operating over different time horizons.** In the short term, changes in the structure of tariffs and nontariff barriers could be the more relevant factors. Over the medium to longer term, more dynamic factors, including changes in monetary policy and exchange rate regime and an improved growth outlook for the EU accession countries, could come into play.

### **Short-term impact**

16. **Changes in tariff structure:** Following EU enlargement, accession countries adopted the EU common external tariff.<sup>8</sup> The impact on effective protectionism toward Ukraine is mixed. On the one hand, it implies a higher effective tariff for the Baltic countries, which previously had a free trade agreement with Ukraine. For most other accession countries, it implies a lower effective tariff. Based on Ukraine's relative export shares, it is estimated that these effects broadly cancel each other out, resulting in a negligible impact on Ukraine's exports: if anything, the net effect may be beneficial to Ukraine, on the order of 0.1 percent of 2003 merchandise exports.

17. **Changes in effective quota:** Among EU quotas, the one of any quantitative importance for Ukraine is the quota on steel, which currently constitutes a binding constraint on exports to the EU. Beyond 2004, non-adjustment of the steel quota could entail an estimated export loss equivalent to around 1-1½ percent of 2003 exports.

18. **Other nontariff barriers:** This effect relates to the extension of EU anti-dumping regulations and health standards to the accession countries. Estimates in this area are highly tentative, as the precise mode of introduction of the regulations, including any transition periods, remains to be finalized, but the impact on Ukraine could reach 0.3 percent of 2003 exports.

### **Longer-term impact**

19. **ERM2 participation:** By reducing exchange rate volatility, eventual ERM2 participation by the accession countries could boost trade between this group and EU15, creating some trade diversion for Ukraine. The overall impact of this factor on Ukraine's exports is likely to be limited, for two main reasons. First, the empirical links between

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<sup>8</sup> For a detailed discussion of the regulatory framework of Ukraine's trade with the EU, pre- and post-enlargement, see "Regulatory-Legal and Institutional Basis of Ukraine's Trade in the EU Market", *Razumkov Centre, National Security & Defence*, No. 11, 2003.

exchange rate volatility and trade are rather weak; the higher range of parameter estimates implies that a 1 standard deviation decrease in exchange rate volatility could raise trade by at most 3-5 percent.<sup>9</sup> Second, the impact of ERM2 participation on exchange rate volatility is ambiguous, especially as a number of accession countries are already pursuing currency boards or de facto pegs to the euro.

20. **Euro adoption:** The empirical literature has documented a very large effect of monetary unions on trade. Thus, while the impact of a reduction of exchange rate volatility on trade is estimated to be modest, moving all the way to a currency union appears to represent a major discontinuity, boosting trade to a much greater degree.<sup>10</sup> Early evidence from the EMU countries, while yielding somewhat lower estimates, has tended to confirm the result that the impact of currency unions on trade is quite large, in the range of 30-60 percent.<sup>11</sup> Thus, the eventual adoption of the euro by the accession countries can be expected to boost their trade with EU15. As far as Ukraine's exports are concerned, the impact hinges on the magnitude of trade diversion. The empirical literature suggests that such diversion tends to be limited on average. In Ukraine's case, however, such trade diversion could turn out to be relatively more pronounced. First, the empirical evidence seems to suggest that trade diversion is stronger for developing/emerging market economies that are not part of a

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<sup>9</sup> See for example, Kenen, P. and D. Rodrik, "Measuring and Analyzing the Effects of Short-Term Volatility in Real Exchange Rates", *Review of Economics and Statistics*, Vol. 68, May 1986; Thursby, M. C. and J. G. Thursby, "Bilateral Trade Flows, the Linder Hypothesis, and Exchange Risk", *Review of Economics and Statistics*, Vol. 69, August 1987; D. O. Cushman, "U.S. Bilateral Trade Flows and Exchange Rate Risk during the Floating Period", *Journal of International Economics*, Vol. 24, May 1988; and S. Tenreyro, "On the Trade Impact of Nominal Exchange Rate Volatility", *Federal Reserve Bank of Boston, Working Paper 03-2*, 2003.

<sup>10</sup> For instance, Rose and his coauthors estimate the effect to be in the range of 200-300 percent: see Rose, A. K., "One Money, One Market: The Effect of Common Currencies on Trade", *Economic Policy*, Vol. 30, April 2000; Frankel, J. and A. K. Rose, "An Estimate of the Effect of Common Currencies on Trade and Income", *Quarterly Journal of Economics*, Vol. 117, May 2002; and Glick, R. and A. K. Rose, "Does a Currency Union Affect Trade? The Time Series Evidence", *European Economic Review*, Vol. 46, June 2002.

<sup>11</sup> This subsequent literature also attempts to correct for endogeneity problems. See, for example, Micco, A., E. Stein, and G. Ordóñez, "The Currency Union Effect on Trade: Early Evidence from EMU", *Economic Policy*, Vol. 33, October 2003 and Faruquee, H., "Measuring the Trade Effects of EMU", *IMF, Background Material on Euro Area*, January 2004.

formal currency arrangement.<sup>12</sup> Second, Ukraine's similar patterns of comparative advantage to most accession countries could imply a non-negligible impact.

21. **Growth outlook:** The increased growth potential of the EU accession countries could boost their demand for Ukrainian goods and services, mitigating to some extent the impact of the two dynamic factors discussed above. While the direct effect of increased trade on growth should in principle be empirically captured in the estimated trade diversion effect, it can be argued that the impact of EU accession on the countries concerned goes well beyond trade. For instance, the harmonization of their legal and regulatory framework to that pertaining in the EU can be expected to encourage direct investment flows into these countries, as well as encourage domestic investment in physical and human capital, raising their medium- and longer-term growth potential.<sup>13</sup> While the impact of these factors is difficult to quantify, it could turn out to be quite substantial.

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<sup>12</sup> See, for example, Klein, M. W. and J. C. Shambaugh, "Fixed Exchange Rates and Trade", *NBER Working Paper No. 10696*, August 2004.

<sup>13</sup> The new empirical growth literature has consistently identified an improved regulatory environment and stronger rule of law as important determinants of growth.

## II. CREDIT BOOM IN UKRAINE: RISKS FOR BANKING SECTOR STABILITY<sup>14</sup>

### A. Introduction and Summary

22. **Rapid credit growth in Ukraine has raised concerns about risks of distress in the banking sector.** The credit boom contributed to financing the strong recovery of the Ukrainian economy but average annual real loan growth of 46 percent since end-2000 or 5 percentage points of GDP was among the highest in transition economies. While catching up from a very low degree of financial intermediation and monetization, the credit to GDP ratio has now reached a level comparable to countries with much stronger structural and institutional environments in terms of banks' risk management capacities, banking supervision, creditor rights, accounting and auditing standards, transparency, and legal framework. The rapid credit expansion therefore entails risks in terms of loan quality, in particular due to the large share of foreign currency-denominated loans and the relatively weak financial conditions of some Ukrainian banks.

23. **Recognizing those risks, the National Bank of Ukraine (NBU) has recently taken numerous steps to tighten prudential regulations and banking supervision.** The NBU raised the minimum capital adequacy ratio to 10 percent, effective March 2004, tightened related-party lending rules, strengthened the definition of capital while facilitating the issuance of new capital, established interest rate ceilings for banks borrowing abroad, introduced a real time monitoring system for interbank activities, and put in place a new risk assessment methodology for its supervisors.

24. **However, further institutional improvements are needed.** A number of additional measures are already in progress and should swiftly be pursued. Amendments to the Banking Act which would require identification of ultimate banks owners and further tighten related-party lending—a performance criterion under the Fund-supported program—have been submitted to parliament. Revisions in provisioning requirements for foreign currency loans have been discussed with banks. Introduction of minimum risk management standards for banks is envisaged and setting up a credit bureau is under way. Until these measures are put in place and fully bear fruit, the NBU should consider raising the capital adequacy ratio to 12 percent and raising the general provisioning ratio back to 2 percent. Closely monitoring banks risk assessment and management practices and acting promptly in response to excessive risk taking is key. Strengthening accounting and reporting standards for corporates, which still inhibit the ability to properly identify risks, and eliminating institutional weaknesses that impact seizure of collateral and enforcement of contracts are other crucial areas for reform.

25. **Macroeconomic policy adjustments can support the containment of credit risk.** In light of emerging inflationary pressures and an unwinding fiscal deficit, a tighter monetary

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<sup>14</sup> Prepared by Andrea Schaechter.



policy stance would contribute not only to containing inflationary risks but also help stem credit risk. Allowing for more exchange rate flexibility would contribute to raising the awareness of foreign exchange risks from unhedged foreign currency borrowing.

## B. Causes and Characteristics of the Credit Boom

26. **Credit growth in Ukraine has been rapid since the decline in real GDP was reversed in 2000 and has only decelerated somewhat during 2004.** Real loan growth averaged 45.9 percent per annum since 2000 and peaked at 60 percent in November 2003 (Figure 1, Table 1). Since then nominal and real credit growth has slowed to rates below 60 percent. The ratio of credit to GDP more than doubled between 2000 and end-June 2004 from 12 percent to 29 percent. The acceleration, which culminated in an 8 percentage points increase during 2003, seems to have come to an end in 2004 but growth rates were still high at 7 percentage points in the first half of the year.

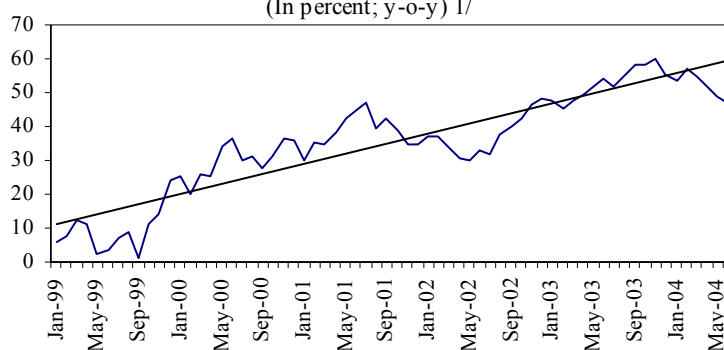
Table 1. Ukraine: Credit Growth, 1999-2004 1/

	1999	2000	2001	2002	2003	Jun-04
	(In percent)					
Credit growth 1/	43.4	61.8	40.9	47.5	63.7	55.2
o/w credit growth to households	35.1	40.1	44.6	133.4	179.4	122.0
Real growth of credit	24.2	36.0	34.5	48.1	55.5	55.2
Credit to GDP ratio	9.9	12.3	14.4	19.3	27.0	29.4
Share of credit to total bank assets	47.1	52.7	58.4	64.9	67.9	68.7
	(In percentage points)					
Change of credit to GDP ratio	1.1	2.4	2.1	4.8	7.7	6.7

Sources: National Bank of Ukraine; and staff estimates.

1/ Commercial bank credit to the economy.

Figure 1. Ukraine: Real Credit Growth, 1999-2004  
(In percent; y-o-y) 1/



Sources: National Bank of Ukraine; and staff estimates.

1/Credit to the economy deflated by changes in the CPI.

**Credit by economic sectors, currency, and maturity**

27. **While loans to enterprises still make up the bulk of bank lending, consumer loans have risen significantly over the past two years more than doubling their share to 13½ percent.** Trade and agriculture have also experienced above average credit growth (Table 2).

Table 2. Ukraine: Credit by Sector, 1999-2004 1/

	1999	2000	2001	2002	2003	Mar-04
	(In percent of total loans)					
Industry	35.8	38.1	38.0	35.3	30.0	28.7
Agriculture	3.3	4.1	6.2	6.4	6.8	7.3
Trade	31.6	34.7	34.0	37.1	36.3	36.7
Construction	2.5	2.2	2.3	2.1	2.3	2.5
Transport	3.3	3.1	3.2	3.8	3.9	3.8
Loans to individuals	5.8	5.0	5.0	7.9	13.2	13.3
Other	17.7	12.8	11.2	7.4	7.5	7.8

Sources: National Bank of Ukraine; and staff estimates.

1/ Credit data in this presentation deviate somewhat from the balance sheet numbers due to different data sources.

28. **Loans denominated in foreign currency continue to play an important role accounting for 37 percent of all loans** (Table 3). In particular, households have turned to foreign currency credits which now account for nearly 60 percent of their bank debt. Most enterprises which borrow in foreign currency, according to anecdotal evidence, are not hedged and often do not have foreign currency income, except for exporters. Data on the share of unhedged borrowers is not available but one can assume a share of at least one quarter of total loans if one considers that all household loans are unhedged and exporters have a share of 43 percent in enterprise loans (equal to the share of exports in private demand).

Table 3. Ukraine: Foreign Currency Loans and Maturity Structure, 1999-2004

	1999	2000	2001	2002	2003	Jun-04
	(In percent)					
Fx credits to total credits 1/	44.8	41.0	41.1	41.1	38.4	37.3
Fx credits to households to total credits to households	7.6	14.7	29.9	40.0	55.3	59.1
Fx deposits to total deposits	44.4	39.0	32.9	32.2	32.2	30.5
Fx credits to fx deposits	104.6	115.6	141.8	138.5	137.5	137.8
Long-term deposits to long-term loans	25.4	32.6	57.7	77.2	64.6	69.1
Short-term deposits to short-term loans	125.6	109.6	99.6	94.6	111.7	118.1
Long-term fx deposits to long-term fx loans	20.3	30.3	43.7	61.8	50.6	51.2
Long-term credits to total credits	22.4	18.0	21.7	28.2	45.0	49.3
o/w Long-term fx credits to total credits	13.9	9.4	11.8	14.5	23.2	24.3
Long-term deposits to total deposits	5.5	6.1	13.8	24.3	32.2	36.2
o/w long-term fx deposits tot total deposits	2.8	3.1	8.1	14.3	19.2	23.0
	(In millions of hryvnias)					
Diff. between long-term fx deposits and loans	-1,309	-1,288	-1,883	-2,321	-7,773	-9,611
Banks' other long-term fx funding	424	422	572	860	2,302	3,007
Banks' net foreign assets	1,434	2,663	2,494	656	-1,924	-2,985

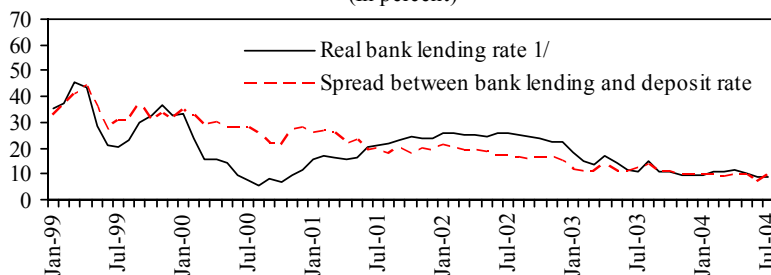
Sources: National Bank of Ukraine; and staff estimates.

1/ "Fx" stands for foreign currency denominated.

29. **A remarkable shift to loans with longer maturities has occurred but at the same time the maturity mismatch between foreign currency denominated loans and funds has widened** (Table 3). Half of loans were long term (maturity greater than one year) at end-June 2004 compared to only 18 percent in 2000. With longer term deposits rising even more strongly, the maturity mismatch between total deposits and loans narrowed continuously until end-2002. However, over the past 1½ years the maturity gap has widened, particularly between foreign currency deposits and loans. At end-June 2004, long-term foreign currency loans exceeded long-term deposits and other long-term foreign currency funds by Hrv 9.6 billion (\$1.8 billion) or 75 percent of banks' capital.

30. **During the lending boom, banks have extended loans at very high, though rapidly falling, real lending rates and spreads.** Lower operating and provisioning costs have enabled banks to cut lending rates so that spreads have fallen by 18 percentage points since end-2000 (Figure 2).

Figure 2. Ukraine: Real Bank Lending Rate and Spread, 1999-2004  
(In percent)



Source: National Bank of Ukraine; and staff estimates.

1/ Deflated by CPI inflation.

## Origins of the credit boom

31. **The strong build-up of NBU's net international reserves has been the prime source for the expansion of base money and, eventually, credit and broad money** (Table 4). Under the de facto fixed exchange rate policy of the NBU, balance of payments (and current account) surpluses, have turned the negative NIR position around in 2001 and led to an accumulation of about US\$ 8.1 billion (Hrv 44.5 billion) until end-June 2004.<sup>15</sup>

Table 4. Ukraine: Origins of Broad Money Growth, 2000-04

	2000	2001	2002	2003	Jun-04
	(In millions of hryvnias; y-o-y)				
I. Broad money growth (=II.+III.+IV) 1/	10,081	13,502	19,115	30,173	34,929
<i>Share of broad money growth explained by:</i>					
II. Base money growth (=mΔB)	8,884	12,059	15,387	19,543	27,059
II.a Change in NIR	11,613	17,266	14,666	28,759	44,567
II.b Change in NDA	-2,729	-5,207	720	-9,216	-17,507
III. Change in multiplier (=ΔmB)	855	1,050	2,790	8,169	5,863
III.a Change in R/D ratio	172	2,052	1,274	101	-1,705
III.b Change in C/D ratio	683	-1,002	1,516	8,068	7,568
IV. Combined effect (=ΔmΔB)	342	393	938	2,461	2,007
	(In percent; y-o-y)				
I. Broad money growth (=II.+III.+IV)	45.5	41.9	41.8	46.5	44.2
<i>Share of broad money growth explained by:</i>					
II. Base money growth	40.1	37.4	33.6	30.1	34.2
II.a Change in NIR	52.4	53.5	32.1	44.3	56.4
II.b Change in NDA	-12.3	-16.1	1.6	-14.2	-22.2
III. Change in multiplier	3.9	3.3	6.1	12.6	7.4
III.a Change in R/D ratio	0.8	6.4	2.8	0.2	-2.2
III.b Change in C/D ratio	3.1	-3.1	3.3	12.4	9.6
IV. Combined effect	1.5	1.2	2.1	3.8	2.5
<i>Memorandum items:</i>					
Money multiplier	1.92	1.98	2.11	2.37	2.41
Balance of payments (In percent of GDP)	4.9	7.5	2.7	4.6	na
Current account (In percent of GDP)	4.7	3.7	5.8	5.8	na

Source: Calculations based on data provided by the National Bank of Ukraine.

1/ The change in broad money can be broken down as:  $\Delta M = \Delta mB + m\Delta B + \Delta m\Delta B$  with M=broad money, B=base money and m=money multiplier.

32. **In the past, the NBU did not actively sterilize these NIR accumulations but reductions in NDA were brought about mainly through higher government deposits.** Despite a reduction of NDA by nearly three quarters between 2001 and end-June 2004, base money has grown on average 34 percent in nominal and 28 percent in real terms. The issuance of central bank CDs and deposits, reverse repos, and sales of government papers from the NBU portfolio to counterbalance such developments were only very sparingly used

<sup>15</sup> The strong foreign reserve accumulation has continued since and NIR stood at US\$10.7 billion on September 10, 2004.

since 2001. Only in light of the recently emerging inflationary pressures, has the NBU shifted to a more active sterilization policy. However, the volumes issued so far since June 2004 have fallen significantly short of the NIR increases. The NBU's contribution to the reduction in the money multiplier since 2000, by lowering the ratio for reserve requirements, is now also being reversed through various measures.

33. **The additional supply of liquidity through the NBU has been matched by a rising demand for broad money so that inflation has generally been kept in check and velocity fallen.** Remonetization is attributed to the reestablished confidence in the hryvnia after the 1998/99 crisis, a decline in noncash payments and taxoffsets, increased confidence in the banking sector, as well repatriated capital encouraged by the improved macroeconomic outlook. In addition to a higher overall real demand for money, these factors have caused the cash to deposit ratio to fall and raised the money multiplier so that broad money growth has surpassed base money growth. The major input to money growth has however been the accumulation of NIR as the breakdown in Table 4 shows.

34. **Banks have funded the expansion of credit mostly through additional deposits from households and enterprises but increasingly also through borrowing from abroad** (Table 5). With the stock of credit surpassing the stock of deposits—at a ratio of 113 percent—the faster credit than deposit growth has required additional resources. Banks have resorted to foreign short-term funds, which has turned their net foreign asset position negative in September 2003. In response to the risks of these developments, the NBU has introduced interest rate ceilings on foreign borrowings for corporates, banks, and nonbank financial institutions in August 2004. Another source has been additional capital, which has however increased much more slowly than banks' total assets, so that capital asset ratios declined until April 2004. Net claims on the government and on the NBU are relatively small and have varied year by year.

Table 5. Ukraine: Funding of Credit Boom, 1999-2004

	1999	2000	2001	2002	2003	Jun-04
<i>Banks' balance sheet:</i>						
	(In percent of GDP)					
I. Deposits	9.6	11.4	12.8	16.9	23.4	26.2
II. Net foreign assets	2.0	1.5	0.3	0.1	-0.7	-1.0
III. Net credit to government	0.5	-0.3	-0.1	0.4	0.6	0.4
IV. Net claims on NBU	0.8	1.8	1.3	1.4	1.8	3.0
V. Other items, net	-3.6	-3.9	-3.2	-4.3	-5.2	-5.5
Credit to the economy (I.-II.-III.-IV.-V.)	9.9	12.3	14.4	19.3	27.0	29.4
	(Ratio to GDP, change over previous year, in percentage points)					
Deposits		1.8	1.4	4.1	6.5	5.8
Credit		2.4	2.1	4.8	7.7	6.7
	(In percent)					
Credits to deposits	103.7	110.0	113.5	113.6	115.2	112.7

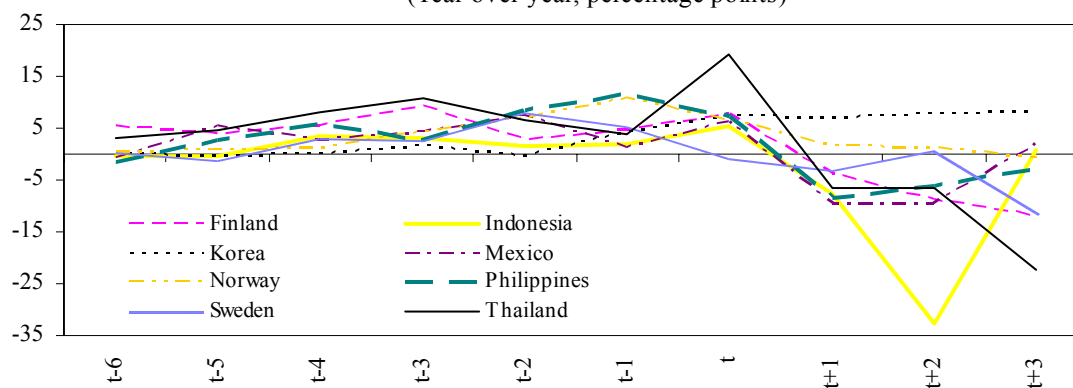
Source: Calculation based on data provided by the National Bank of Ukraine.

### C. Risks for Banking Sector Stability

#### Overview

35. **Rapid credit growth is one of the most robust leading indicators for banking distress even though the majority of lending booms has not resulted in banking crises.** Numerous studies have found that periods of significant and accelerating credit growth often preceded banking crises.<sup>16</sup> The likelihood for a banking crisis to follow a lending boom is estimated to be as high as 20 percent, depending on the data set and methodology used. Prominent examples include the Scandinavian banking crises in the early 1990s, the Asian financial crisis in 1997/98, and Mexico's banking crisis in 1994. As depicted in Figure 3 and Table 6 the ratio of credit to GDP increased rapidly in those countries, averaging 5.2 percentage points per year in the five years leading up to the crisis.

Figure 3: Credit-to-GDP Ratio in Banking Crisis Countries 1/  
(Year-over-year; percentage points)



Sources: IMF International Financial Statistics; and staff estimates.  
1/ t=year of crisis.

<sup>16</sup> Eichengreen and Arteta (2001) find robustness of these results by testing the findings of earlier studies by Gavin and Hausmann (1996), Kaminsky and Reinhart (1999) and Gourinchas, Valdes, and Landerretche (1999). Other papers that support the importance of lending booms for banking crises are, for example, Drees and Pazarbaioglu (1998), Hardy and Pazarbasioglu (1998), Demirguc-Kunt and Detragiache (1997).

Table 6. Credit-to-GDP Ratio in Banking Crisis Countries 1/  
(In percent)

	t-6	t-5	t-4	t-3	t-2	t-1	t	t+1	t+2	t+3
Finland (t=1991)	60.1	63.9	69.2	78.3	81.2	86.0	93.7	89.8	81.0	69.0
Indonesia (t=1997)	45.8	45.5	48.9	51.9	53.5	55.4	60.8	53.2	20.5	21.1
Korea (t=1997)	52.6	52.2	52.2	53.8	53.2	57.6	64.8	71.7	79.5	87.6
Mexico (t=1994)	8.5	13.8	16.3	20.4	27.8	28.9	34.9	25.2	15.6	17.7
Norway (t=1987)	31.3	32.1	33.2	37.3	44.1	55.0	61.7	63.1	64.3	63.5
Philippines (t=1997)	17.8	20.4	26.4	29.1	37.5	49.0	56.5	48.0	42.0	39.2
Sweden (t=1990)	40.7	39.3	42.1	44.3	52.2	57.2	56.1	52.5	52.8	40.9
Thailand (t=1997)	67.7	72.2	80.1	91.0	97.7	101.7	121.1	114.6	108.1	85.7

Sources: IMF International Financial Statistics; and staff estimates.

1/ t is the year of the crisis.

36. **There are several reasons why excessive lending booms entail risks for future banking distress.** First, risk assessments suffer due to the vast amount of new loans extended. Loan officers may be overburdened and agree to riskier loans which are not appropriately priced. Second, the perceived risks of loans are underestimated during lending booms because the risk assessments are based on the current strong economy and rising values of underlying collateral. As a result, in most countries lending is strongly procyclical: in upswings, lending is extended much faster than real GDP and in recessions it contracts stronger than output. Third, lending booms can facilitate “ever-greening” when new loans are used to service existing debt. And fourth, such type of credit supply behavior can also prevent banks from further diversifying their loan portfolio.

37. **The risks for financial sector stability are predominantly linked to the speed of credit growth rather than the stock of credit or money.** While the rapid expansion of money and credit may very well be a sign of “catching-up”, remonetization, and deeper financial intermediation, and does not necessarily have negative macroeconomic (inflationary) implications, it entails important risks for the stability of the financial sector. The vulnerabilities of the banking sector depend on the risks that banks have taken on board in relation to their financial cushion. Numerous factors contribute to this, such as the quality of banks’ credit policies, the quality of collateral, the level of provisions, diversifications of loans, foreign exchange risk, maturity mismatches, and access to other income sources.

38. **Nevertheless, the level of financial intermediation impacts the costs for the economy from financial sector distress.** An economy where the banking sector and the level of credit are sizable, would be more strongly affected from distress in the financial system than an economy where only a small fraction of individuals and enterprises uses banking services. Empirical studies have however not yet attempted to distinguish the costs based on the degree of financial intermediation which has varied strongly in banking crises countries, from as low as 10 percent in some sub-Saharan African and Latin American countries to as high as 120 percent in Thailand. The costs of full-blown banking crises have

been estimated to range up to 50 percent of GDP, depending on many factors, such as the severity and length of the crisis and the responses by the authorities.<sup>17</sup>

### **Risks for the Ukrainian banking sector**

39. **The rapid increase in loans has exposed the Ukrainian banking sector to significant credit and exchange rate risk that could result in financial distress if the economy were to suffer negative shocks.** Even though the macroeconomic performance has been strong and many vulnerability indicators for currency crises have been improving, such as the level of public debt, the current account balance, and the level of reserves, the lending boom is a serious concern and needs to be monitored carefully. The main factors that constitute this concern are discussed below.

40. **The lending boom presents a severe challenge for banks' risk management and loan practices which are still evolving.** The sheer volume of additional loans—having increased sevenfold over the past five years—must have placed great strain on banks' ability to evaluate loan applications with due care. Risk management practices are still evolving in many Ukrainian banks, in particular since there are only few foreign banks in Ukraine that bring international practices to the sector (see Table 7 for the structure of the Ukrainian banking system).

41. **Fundamental structural weaknesses, including lack of transparency, also remain in the enterprise sector which impedes risk assessment.** The framework for creditor's rights and insolvency continues to be weak even though the recent adoption of the Mortgage Law and the Registration Law are important steps. Significant differences also remain between national accounting and auditing standards and international standards which make proper credit risks assessments for banks more difficult. Moreover, the current legal and regulatory framework for corporate governance is weak and seen as an impediment to investment. Transparency of state enterprises is another important aspect in particular since their bank borrowing has also increased, although more slowly than for the rest of the economy.

42. **In addition to these difficulties, there are signs that signal imprudent behavior of some banks.** Related-party lending has been a widespread practice but the NBU has stepped up its efforts to contain it (see Section III for more details). Moreover, some banks have reportedly attracted deposits by offering very high deposit rates and funded themselves short-term at high rates on the interbank market to on-lend to risky borrowers.

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<sup>17</sup> For an attempt to estimate the fiscal costs of selected banking crises see Hoelscher and Quintyn (2003).



Table 7. Ukraine: Financial Soundness Indicators for the Banking Sector, 2000-04  
(In percent, unless otherwise indicated)

	Dec-00	Dec-01	Dec-02	Dec-03	Mar-04	Jun-04
<b>Ownership</b>						
Number of banks	153	152	157	158	157	158
Private	151	150	155	156	155	156
Domestic	120	122	135	137	137	138
Foreign	31	28	20	19	18	18
o/w: 100% foreign-owned	7	6	7	7	6	6
State-owned	2	2	2	2	2	2
<b>Concentration</b>						
Share of assets of largest 10 banks	55.3	52.5	54.1	53.7	54.2	54.9
Share of assets of largest 25 banks	71.4	66.8	71.0	71.7	71.5	72.3
Number of bank with assets less than \$150 million	145	141	140	132	127	127
<b>Capital Adequacy</b>						
Regulatory capital to risk-weighted assets	15.5	20.7	18.0	15.2	14.8	15.2
Capital to total assets	16.2	15.6	14.9	12.3	12.1	12.1
<b>Asset Quality</b>						
Credit growth (year-over-year)	61.3	40.5	47.3	63.4	61.4	55.0
Credit to GDP ratio	12.4	14.5	19.4	27.0	28.2	29.7
Change of loan to GDP ratio (in percentage points)	2.4	2.1	4.8	7.7	1.2	1.5
Loans in foreign currency to total loans	41.4	41.3	39.5	38.5	38.4	37.4
NPLs to total loans 1/ 3/	29.6	25.1	21.9	28.3	28.0	27.5
NPLs (excl. timely serviced substandard loans) 2/				8.5	8.2	7.9
Loans classified as doubtful and loss to total loans	16.8	9.9	7.2	7.2	6.9	6.6
NPLs net of provisions to capital 3/	68.0	62.9	63.8	143.8	150.5	147.8
Specific provisions to NPLs 3/ 4/	38.4	39.2	39.6	22.7	21.8	21.5
Specific provisions to total loans	11.3	9.6	8.7	6.4	6.1	5.9
<b>Earnings and Profitability</b>						
Return on assets (after tax; end-of-period)	-0.1	1.2	1.2	1.0	1.0	1.0
Return on equity (after tax; end-of-period)	-0.5	7.5	8.0	7.6	7.5	7.6
Net interest margin to total assets	6.3	6.5	5.6	5.8	5.0	4.9
Interest rate spreads (in percentage points; end-of-period)						
Between loans and deposits in domestic currency	28.5	18.9	14.9	9.9	8.7	6.8
Between loans and deposits in foreign currency	10.2	5.4	5.3	4.0	5.6	5.5
Between loans in domestic and foreign currency	21.3	18.0	10.5	6.9	5.0	4.5
Between deposits in domestic and foreign currency	3.4	4.6	0.9	1.1	2.0	3.2
<b>Liquidity</b>						
Liquid assets to total assets	20.8	15.3	13.5	15.3	17.3	15.5
Customer deposits to total (non-interbank) loans	59.1	87.6	87.6	86.6	87.2	89.5
of which: foreign currency deposits to total deposits	44.4	32.9	32.2	32.2	30.3	30.9
<b>Sensitivity to market risk</b>						
Net open positions in foreign currency to capital	32.9	22.3	21.5	17.7	17.3	17.9
Foreign currency loans minus foreign currency deposits to capital	49.6	47.2	49.2	59.1	68.3	55.1

Sources: National Bank of Ukraine; and Fund staff estimates.

1/ Increase in NPLs in 2003 is partly due to new classification rules.

2/ The NBU estimates that as of end-March 2004, 94 percent of loans classified as substandard are being timely serviced.

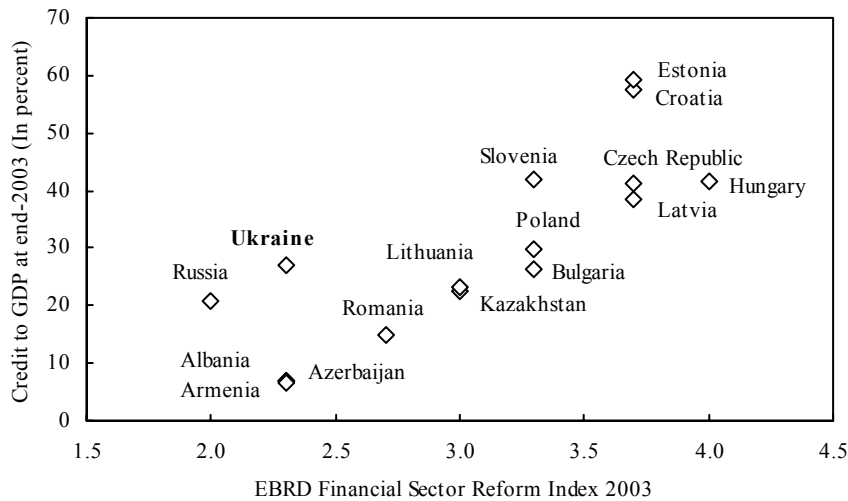
3/ NPLs are those classified as substandard, doubtful, and loss.

4/ About half of the drop in the provision to NPL ratio from end-2002 to end-2003 is due to new loan classification rules.

43. **The share of foreign currency lending remains high** (Table 7). Most borrowers, including the rising share of households, are unhedged and do not receive cash-flows in foreign currency. Given the NBU's de facto fixed exchange rate policy over the past few years, a strong perception has developed among enterprises and individuals that it is safe and cheaper to borrow in foreign currency at lending rates, approximately 700 basis points below hryvnia loan rates. Another risk is the rising maturity mismatch between foreign currency loans and foreign currency deposits and other foreign currency funding which is mostly short-term.

44. **Compared to other transition economies that experienced rapid credit growth, structural and institutional conditions are much weaker in Ukraine.** In a recent IMF Working Paper, Cottarelli, Dell’Ariccia, and Vladkova-Hollar (2003) find that factors, such as the degree of structural reforms, the degree of foreign (or private) ownership, and strength of creditor’s rights have contributed to lending booms. Since Ukraine lags behind on this front to many transition countries while its credit-to-GDP ratio is well within the range of countries with stronger structural environments (Figure 4)<sup>18</sup> and the speed of credit growth among the highest of transition economies (Figure 5), this gives rise to concern that the credit boom could be unsustainable. An indicative example is the banking crisis in Latvia in 1995 which came amidst strong credit growth against the background of fraudulent activities and weaknesses in the regulatory framework, in particular regarding connected lending and interlocking ownerships patterns between banks and enterprises.

Figure 4: Transition Economies: Credit-to-GDP Ratio and Institutional Reform, 2003 1/

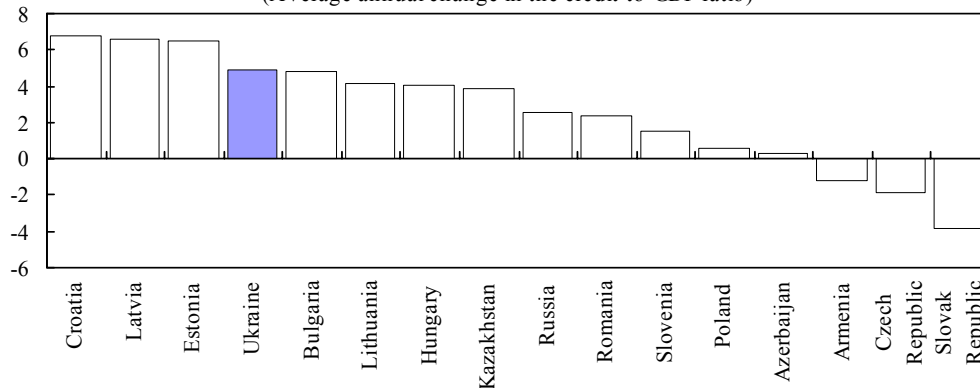


Sources: IMF International Financial Statistics; EBRD Transition Report 2003; and staff estimates.

1/ Private sector credit.

<sup>18</sup> This is the case even if one adjusts Ukraine’s GDP for the underestimation of the shadow economy, which is however also present in many other transition economies.

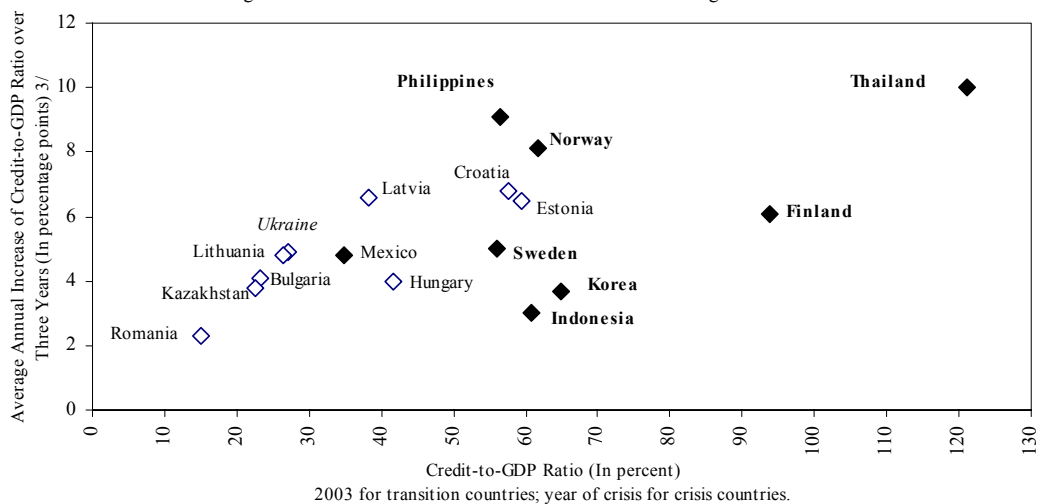
Figure 5: Credit Growth in Transition Economies, 2001-03 1/  
(Average annual change in the credit-to-GDP ratio)



Sources: IMF International Financial Statistics; and staff estimates.  
1/ Bank credit to the private sector.

45. **Compared to prominent crisis countries, the stock of credit in Ukraine is still much lower but differences in the speed of credit expansion have narrowed.** Ukraine's credit-to-GDP ratio of 29 percent at end-June 2004 is still less than half of that in the crisis countries shown in Figure 6. Moreover, the episodes of credit expansion in the crisis countries were more prolonged. The annual increase in credit to GDP averaged about 5 percentage points over the five years before the crisis. This compares to 4 percentage points in Ukraine, but credit growth has accelerated to 5 percent of GDP over the past 3½ years. Even though the credit boom in Ukraine can be attributed to catching-up from a very low level of financial intermediation and has contributed to funding the strong economic recovery, the speed itself inhibits the above discussed risks since institutional and structural reforms have lacked behind.

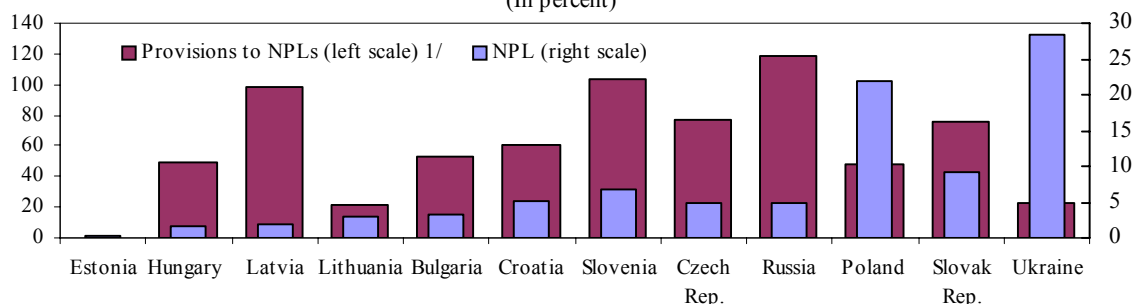
Figure 6: Credit Growth in Transition Economies and Banking Crisis Countries 1/2/



Sources: IMF International Financial Statistics; and staff estimates.  
1/ Private sector credit.  
2/ Crisis countries are depicted in bold.  
3/ 2001-03 for transition countries. Biggest average annual three year increase before crisis for crisis countries.

46. **Relatively high levels of adversely classified loans continue to plague banks.** The high share of loans classified as “substandard”, doubtful,” and “loss of 27.5 percent at end-June 2004 reflects to some extent strict loan classification rules but nevertheless credit quality remains a concern (Table 7). Loans are classified according to three criteria: (i) status of debt servicing, (ii) financial conditions of the borrower, and (iii) collateral. In addition to past due criteria which are stricter than in many countries, loans automatically fall in the category “substandard” if the loan is to a “class C” borrower even when the loan is serviced timely. This includes all loans to borrowers without credit history. Other “class C” borrowers exhibit profitability below industry average, but this is not viewed as a sign of higher risk but rather tax evasion. A jump in that category occurred in August 2003, when the NBU tightened its classification rules. NPLs peaked at end-2003 at 28.3 percent but have since fallen gradually as have the lowest two classification categories. Adjusting NPLs by the timely serviced loans reduces the ratio from 27.5 percent to 7.9 percent but does not lift concerns about credit quality. The revision is based on an NBU survey among banks which finds 94 percent of “substandard” loans being repaid on time. A better understanding of the repayment risks for loans in that category, however, would also require a better understanding of the “true” financial conditions of the borrowers. Even at 8 percent the level of NPLs is higher than in many other transition economies (Figure 7), except those which have similarly tight classification rules such as Kazakhstan and Poland.

Figure 7: Asset Quality in Emerging Europe, 2003  
(In percent)

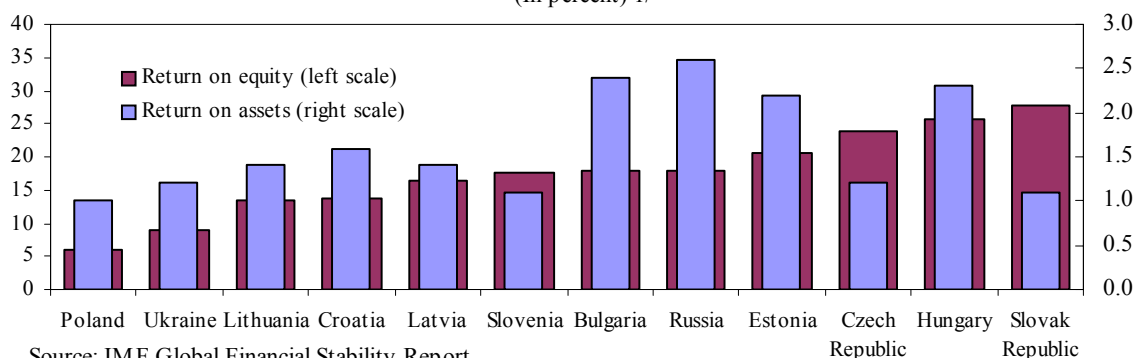


Source: IMF Global Financial Stability Report.  
1/ Provisions to NPLs not available for Estonia.

47. **The buildup of cushions, in form of capital and provisions, has not kept pace with the rapid credit expansion.** The fall in the ratio of regulatory capital to risk-weighted assets has only been reversed in April 2004 (Table 7). The ratio stood at 15.2 percent at end-June 2004, but for the largest 10 banks, it was only 1½ percentage points above the minimum requirement. Moreover, the NBU indicated that the quality of capital in some banks has been impaired since it included accrued income and revaluation gains on fixed assets. However, a new regulation dealing with these issues came into effect in July 2004. The level of provisions to total loans has fallen steadily despite a tightening in loan classification in mid-2003 which has moved a substantial share of loans from the “watch” to the “substandard” category (Table 7).

48. **Profitability of Ukrainian banks continues to be low.** Since tax avoidance is reported as a major factor behind the low official profit numbers, it is difficult to assess the true ability to replenish bank capital from retained earnings. Investments in new technology and infrastructure, the level of NPLs, high operating costs, the relatively large shares of fixed assets, and the lack of other income sources than interest income are other factors behind the low profits. Profitability indicators lag behind other transition economies (Figure 8).

Figure 8: Profitability of Banking Systems in Emerging Europe, 2003  
(In percent) 1/



Source: IMF Global Financial Stability Report.  
1/ Return on assets 2002 for Latvia.

49. **The underdevelopment of capital markets and restrictions on international capital flows have also contributed to a concentration of risk in banks' assets.** Due to the lack of other investment opportunities, additional customer deposits have been used entirely to expand the loan portfolio raising its share in total assets to 68 percent in 2003 compared to 53 percent at end-2000,

which is high in comparison to other transition economies (Table 8). Investment in securities has remained low at less than 6 percent and foreign assets have dropped to 7 percent (compared to 13 percent in 2000). The government's decision to borrow on the Eurobond market rather than domestically has also contributed to this trend.

50. **The high level of real interest rates during the lending boom could potentially lead to credit losses.** The economy has more than quadrupled its real bank debt since end-1999 by borrowing at average annual real lending rates of 17 percent. Even with a real GDP growth of 7 percent per year, some share of loans has financed high-risk investments for which it is unclear whether risk premiums are appropriate. Since the lending boom facilitates access to new loans, the true level of non-performing loans may easily be underestimated.

51. **It is unclear whether loans are adequately priced.** Real lending rates and spreads have come down to 9.7 percent and 10.9 percent respectively at end-2003, which is still high

Table 8. Transition Economies: Share of Loans in Total Bank Assets, 2003  
(In percent)

Bulgaria	49.7	Poland	40.7
Croatia	57.2	Romania	55.6
Estonia	65.6	Slovenia	37.8
Hungary	68.8	Ukraine	67.9
Lithuania	50.7		

Source: Central bank websites.

but comparable to episodes in more advanced transition economies or other emerging market countries that have also been plagued by structural banking sector problems (Table 9). Given the lack of data it is impossible to disentangle how much of the interest rate level can be attributed to remaining operating inefficiencies and how much is a risk premium. Thus, whether loans are adequately priced is difficult to determine. However, aggressive lending practices (rising loan portfolios and falling lending rates) could be indications for excessive risk taking if pursued by banks with weak capital positions and profitability.

Table 9: Transition and Emerging Market Economies: Real Bank Lending Rates and Spreads, 2000-03  
(In percent)

	2000	2001	2002	2003	2000	2001	2002	2003
<i>Transition economies</i>	<i>Real bank lending rates 1/</i>				<i>Spreads 2/</i>			
Bulgaria	1.2	3.7	3.5	3.2	8.4	8.2	6.6	5.9
Croatia	6.8	4.8	10.9	10.0	8.3	6.3	11.0	10.1
Czech Republic	3.3	2.5	4.9	4.9	3.7	4.3	4.7	4.6
Estonia	3.4	2.0	3.1	4.4	3.7	3.7	4.0	3.1
Hungary	2.8	2.9	4.9	3.9	3.1	3.7	2.8	2.5
Latvia	9.2	8.7	6.0	1.8	7.5	5.9	4.7	2.4
Lithuania	11.1	8.3	6.5	7.1	8.3	6.6	5.1	4.6
Poland	9.9	12.9	10.2	5.6	5.8	6.6	5.8	3.5
Russia	3.7	-3.5	-0.1	1.0	17.9	13.1	10.8	8.2
Slovak Republic	2.9	3.9	6.9	-0.7	6.4	4.8	3.6	2.8
Slovenia	6.9	6.6	5.7	6.1	5.7	5.2	4.9	4.8
Ukraine	13.3	20.3	24.6	9.7	27.8	21.3	17.4	10.9
<i>Other emerging markets</i>								
Brazil	49.8	50.8	54.4	57.8	39.6	39.8	43.7	40.3
Chile	11.0	8.3	5.3	5.1	5.6	5.7	4.0	3.4
Indonesia	13.9	6.5	7.5	11.4	6.0	3.1	3.4	7.9
Korea	6.3	3.6	4.1	2.8	0.6	1.9	1.8	2.1
Mexico	7.4	6.4	3.2	2.9	8.7	6.6	4.4	3.8
Philippines	6.6	6.3	6.0	6.5	2.6	3.7	4.5	3.7
South Africa	9.2	8.1	6.6	15.0	5.3	4.4	5.0	5.2
Thailand	6.3	5.6	6.3	4.1	4.5	4.7	4.9	4.6

Source: IMF International Financial Statistics.

1/ Deflated by changes in CPI.

2/ Difference between average bank lending and deposit rates.

52. **Rating agencies also have concerns about rapid credit growth.** “Recent growth in banking sector assets (primarily loans) has also raised a number of concerns. These include worries about asset quality... . Loan growth has placed further pressure on banks’ capital positions, raising concerns about many banks’ ability to absorb a sharp deterioration in asset quality, whilst also restricting opportunities for further growth” (FitchRatings, The Ukrainian Banking System, March 16, 2004). At present, ten banks are rated, accounting for nearly one third of banking sector assets, and all receive low speculative grades (Table 10) reflecting the low confidence in their financial strength.

Table 10. Banks in Ukraine: Ratings by Fitch and Moody's, end-July 2004

	Fitch		
	Long term	Short term	Individual bank
First Ukrainian International Bank	B-	B	D
Industrialbank	CCC	C	D/E
PrivatBank	B-	B	D
Ukreximbank	B+	B	
Ukrsibbank	B-	B	D/E

	Moody's		
	Long term	Short term	Financial strength
Bank Nadra	B2	NP	E+
Forum Bank	B2	NP	E+
Pravex	B2	NP	E+
Ukreximbank	B2	NP	E+
Ukrsibbank	B2	NP	E+
Ukrsotsbank	B2	NP	E+
Vabank	B2	NP	E+

Source: Bankscope.

Fitch: Ratings below BB are speculative grades.

Moody's: B=6th of 9 categories; NP=non-prime (lowest category); E=lowest category.

#### D. Policy Options

53. **Even though the credit boom shows first signs of deceleration, a combination of macroeconomic and regulatory and supervisory policies should be used to contain risks for the financial sector.**<sup>19</sup> Allowing for more exchange rate flexibility and curbing strong money growth can go a long way in addressing exchange rate risk and stemming the credit boom. Tighter monetary policy is also called for in light of emerging inflationary pressures. Regulatory and supervisory responses are crucial complementary policies. The NBU has already significantly stepped up its efforts in this area but continuous progress will be needed. Developing domestic securities markets and thereby providing banks with alternative investment and business opportunities is another strategy that contributes to banking sector stability over the long run.

#### Monetary and exchange rate policies

54. **A greater degree of exchange rate flexibility could contribute to moderating the general lack of exchange rate risk perception of borrowers in foreign currency.** The NBU's de facto fixed exchange rate policy has successfully brought inflation down to single digits and stabilized expectations, but has also created an environment in which borrowers continue to take on exchange rate risk with more and more consumers resorting to the

<sup>19</sup> For a discussion on the regulatory policy options to deal with procyclicality of bank lending and financial stability see Borio, Furfine, and Lowe (2001).

“cheaper” form of foreign currency borrowing. More flexibility in the exchange rate, without allowing excessive short-run fluctuations, should contribute to changing that risk perception.

55. **The role that monetary policy can and should play for financial stability has received increased attention over the past years** (see Box 1). Traditionally, most central bankers viewed monetary policy to contribute to financial stability through its macroeconomic objectives. However, even at times of low inflation, financial vulnerabilities can build up and call for pre-emptive actions to head off potential financial instability. Views still differ on the weight and timing of financial stability considerations. It remains a judgment call in weighing the potential costs that the distress in the financial system could cause versus output costs from curbing an economic boom (without inflationary pressures) through tighter monetary policy and other costs such as moral hazard (see Box 1).

56. **For Ukraine, taking steps to stem base money and broad money growth is desirable from both the financial stability as well as the price stability front.** In light of the strong balance of payments and rapid accumulation of international reserves, a more proactive monetary policy is needed in particular should looser fiscal policy create additional liquidity and put more pressures on prices. The NBU has already reintroduced the use of liquidity absorbing instruments such as reverse repos, NBU certificates of deposits, and deposit taking and has tightened reserve requirements. However, all operations aimed at absorbing liquidity have not yet fully matched increases in international reserves.

### **Regulatory and supervisory policies**

57. **Establishing a regulatory framework and supervisory practices that avoid that a deterioration in the credit quality puts significant strains on banking sector is a key objective independent of the speed of credit growth.** The NBU has already undertaken many efforts in these areas, in particular over the past 6 months. The new higher minimum capital adequacy ratio of 10 percent took effect on March 1, 2004. Related-party lending was tightened. Amendments to the Banking Act that would require identification of ultimate bank owners and further tighten related-party lending, including by eliminating related-party lending at favorable terms, were submitted to parliament. The definition of capital was strengthened, in particular by eliminating accrued income from capital and tying the use of revalued fixed assets to audit results. New resolutions were issued that facilitate raising new capital. A real-time online monitoring system for interbank activities was established and a new risk assessment methodology for supervisors was put in place and is envisaged to be introduced as guidelines for banks. Interest rate ceilings on borrowing abroad were established. The setting up of a credit bureau is underway with the support of the World Bank.



### **Box 1. Should Financial Stability be an Explicit Central Bank Objective?**

The appropriate degree of activism on the part of central banks when pursuing financial stability objectives through monetary policy levers is being discussed critically by policy-makers and academics. The schools of thought range from the view that monetary policy serves financial stability best by focusing on providing low inflation and stable macroeconomic conditions to the view that monetary policy should be more proactive to address those financial vulnerabilities that arise from macroeconomic imbalances even at times of low inflation.

The view that monetary policy should not be guided by financial stability objectives is based on the understanding that financial distress derives primarily from failures of individual institutions at the micro-level that could then spread to other institutions through money markets or payments and settlement systems. A clear division of labor between supervision and regulation with a financial stability objective and monetary policy with a price stability objective follows from this view. Too much monetary policy activism could cause higher variability in output.

The supporters of a more proactive stance of monetary policy to avoid the build up of financial vulnerabilities argue that many systemic crises, including the crises in the Nordic countries, Mexico, and Asia, arose from unbalanced macroeconomic conditions such as rapid credit growth, poor risk assessments, weak financing constraints, and buoyant asset prices while inflation was mostly contained. Banking crises were the result of common exposures to macroeconomic risk factors rather than bank or group specific exposures. Central banks should thus respond to indicators of future financial distress, such as rapid credit expansion and asset price growth, by tightening monetary policy conditions.

On this spectrum of views, a lower degree of activism in monetary policy is supported for example by Ferguson (2004) of the Federal Reserve System while Icard (2004) and Borio and Lowe (2002) from the Bank of International Settlements back a more proactive stance. Both sides agree that “the real question may not be so much whether financial stability should be a central bank objective, but rather how policy makers should weight the objective in reaching policy decisions.”

58. **Until these policies fully bear fruit, additional discretionary measures are useful to address specific risks arising from the lending boom which can be reversed at a later point in time.** Regulators have been discussing such “specific options” in conjunction with the strong procyclicality of loans and bank profitability which is being observed in many countries.<sup>20</sup> Particular options that the NBU should consider include higher minimum capital adequacy ratios, higher or differentiated provisioning rates, and further tightened related-party lending rules.

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<sup>20</sup> See for example Bank for International Settlements (2001). Establishing rules according to which prudential regulations change over the cycle is also being discussed. More-forward looking dynamic provisioning requirements to smooth their procyclicality is one example. Additional provisions would be set aside in economic (lending) booms, when loans are extended and risk is acquired, rather than in downturns when the loan quality deteriorates. However, while some countries, such as Spain, have moved in this direction, there are still concerns being raised in accounting circles as the concept would reflect future values rather than realized values and reduce transparency.

59. **While the increase in the minimum capital adequacy ratio to 10 percent already goes a long way in providing an additional cushion for asset quality deterioration, a further increase to 12 percent should be considered.** Strictly enforcing the new minimum CAR, effective March 2004,

Table 11. Transition Economies: Minimum Capital Adequacy Ratios  
(In percent)

Albania	12	Latvia	10
Bulgaria	12	Lithuania	10
Croatia	10	Poland	8
Czech Republic	8	Romania	12
Estonia	12	Russia	10
Georgia	15	Slovak Republic	8
Hungary	8	Slovenia	8
Kazakhstan	12	Ukraine	10

Sources: IMF FSAP Reports; and central bank websites.

as well as the tighter definition of capital will contribute to banks with excessive credit portfolio growth and much slower capital growth to rebalance their expansion strategy somewhat. However, given the potential risks already accumulated in some banks and the time it takes to strengthen risk management practices, even higher capital cushions may be needed. Many transition economies have minimum CARs above 10 percent or have lowered them only later in their transition process (Table 11). For example, Lithuania reduced its initial minimum CAR from 13 percent to currently 10 percent. For the Ukrainian banking system, a further increase in the minimum CAR should also have no major negative impact on the competitiveness of the banking sector since capital controls inhibit major bank business going abroad.

60. **Raising requirements for general reserves and specific reserves for unhedged foreign currency lending would explicitly ask banks to provision for significant risk taken on board during the lending boom.** An increase in the general provisioning requirement back to 2 percent—the level from which it was lowered to 1 percent in January 2003—would be a conservative approach to credit risk and can be reversed once banks' risk management practices and the NBU's supervisory practices improved further or there are clear indications that risk taking has not been excessive. Moreover, levying specific provisioning requirements on foreign currency denominated loans to unhedged borrowers would help address banks' credit risk to this particular group of borrowers and reduce incentives for foreign currency borrowings.<sup>21</sup> The NBU is currently discussing this option. Higher provisioning rates for specific types of credits, which carry higher than average risks, is a standard practice found for example in the United States for credit card loans.

<sup>21</sup> Given the low share of foreign currency lending in most industrial countries, there are yet no "best practices" or BIS recommendations on provisioning regulations for partially dollarized economies. Nevertheless, different policy options are discussed in a recent IMF Working Paper by del Mar Cacha and Morales (2003). Specific-to-group provisions are the favored prudential approach in line with current proposal to improve International Accounting Standards and proposals by the Accounting Task Force of the Basel Committee.

61. **Tightening further related party regulations is also crucial to stem credit risk.** While related-party lending always inhibits particular risk factors that need to be carefully managed, there is a heightened risk during a lending boom when such loans can mask true risk if used for ever-greening and can lead to higher concentrations of banks' loan portfolios. The NBU has already introduced measures to contain related-party lending at favorable rates by requesting it to be fully matched by set aside capital. Moreover, credit exceeding the related-party as well as single exposure limits will be deducted from capital. Adoption of the draft amendments to the Banking Act, which will help identify ultimate banks owners and fully eliminate related-party lending at favorable terms, is crucial for further risk containment in this area.

62. **Institutional weaknesses also need to be tackled.** Stronger accounting and auditing practices for corporates would facilitate proper assessment of risks. A simplification of foreclosure rules, e.g. based on contract without court intervention, could raise the intrinsic value of the underlying collateral. Also procedural impediments, such as the role of the State Execution Service should be revisited.

#### **Development of securities markets**

63. **Developing domestic securities markets would contribute to providing alternative investment opportunities to banks and improve pricing by establishing a yield curve.** Making the existing restructured securities more marketable and creating a supportive infrastructure, possibly including a primary dealers system, are two of the policy options. However, for such measures to be successful a conducive public debt management strategy and practices with a view to securities market development are needed. Recommendations to that effect were made during the FSAP, including creating benchmark issues by narrowing the range of government securities, reducing the auction frequency, overissuing at times, and making auction procedures more transparent.<sup>22</sup>

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<sup>22</sup> See Chapter V for a more detailed discussion.

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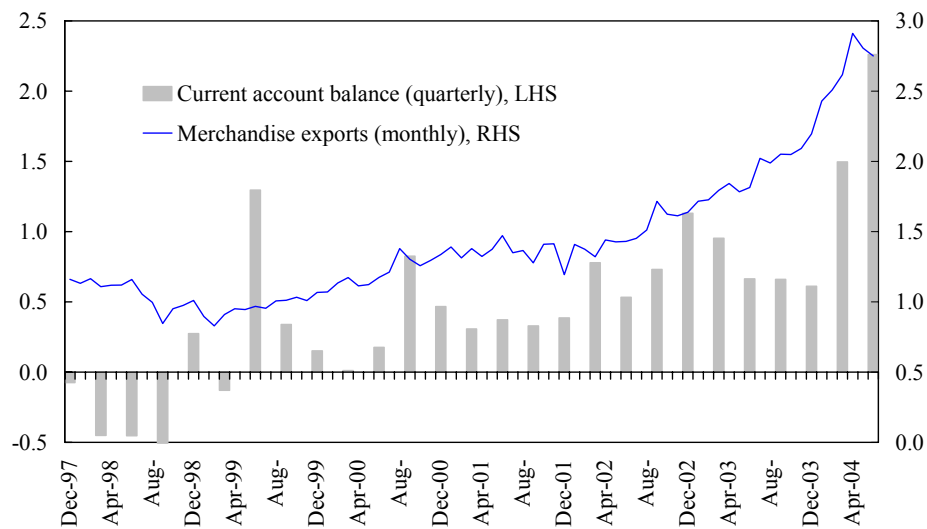
### III. COMPETITIVENESS, CONVERGENCE, AND THE EQUILIBRIUM REAL EXCHANGE RATE<sup>23</sup>

64. This chapter investigates Ukraine’s real equilibrium exchange rate, drawing chiefly from cross-country panel-data analysis and the experience of other neighboring East-European countries. The results suggest that Ukraine will likely experience significant upward pressure on the real exchange rate, particularly as it orients itself to the European Union. Moreover, such pressure will probably make the simultaneous pursuit of the authorities’ exchange rate and price stability goals increasingly difficult, highlighting the need for greater exchange rate flexibility.

#### A. Background

65. **Ukraine’s recovery over the past five years has been impressive. However, there are growing signs that the external balance is not in equilibrium.** Much of the impetus for the recent surge in activity has come from export demand, which has in turn resulted in sizeable surpluses on the current account, reaching over 10 percent of GDP in 2004 (Figure 1). Although such export-led growth may be viable over the short term, surpluses of this size are not sustainable, or even desirable, over the medium term. Ukraine is, in effect, using a large portion of the economy’s export proceeds to finance investment and consumption abroad, rather than at home—a somewhat puzzling result, given the domestic economy’s low living standards and pressing investment needs. Moreover, with an exchange rate that is effectively pegged to the U.S. dollar, these surpluses may also complicate the authorities’ monetary policy objectives.

Figure 1. Ukraine: Exports, 1997-2004  
(In billions of U.S. dollars; seasonally adjusted)



Sources: Ukrainian authorities; and Fund staff estimates.

<sup>23</sup> Prepared by Andrew Tiffin.

66. **Persistent external surpluses suggest that Ukraine's real exchange rate (RER) is undervalued.** Indeed, compared to the current exchange rate of Hrv 5.31 per USD, the purchasing-power parity (PPP) rate is approximately one-to-one: i.e., for a given bundle of goods and services, prices in Ukraine are around 80 percent below international levels at the current nominal exchange rate. Such a large disparity suggests that there is significant potential for a real appreciation over the medium term—eventually, either prices or the exchange rate will rise. In an attempt to gauge the extent of this potential, the chapter draws on the experiences of a number of neighboring transition countries. Specifically, given the authorities' goal of eventually becoming a member of the European Union, the chapter focuses on the recent history of those central European countries (CEC) that have recently joined the EU: these include the Czech Republic, Hungary, Poland, the Slovak Republic, and Slovenia.

67. **Over the past decade, the CECs have experienced sizeable appreciations of their real exchange rate.** One estimate suggests that, for transition countries over 1992-2002, the cumulative real appreciation vis-à-vis the deutsche mark averaged over 230 percent (Lipschitz and others, 2002). Part of this appreciation most likely reflects the Balassa-Samuelson (B-S) effect—faster productivity growth in the tradables sector, compared to the nontradables sector, forces nontradable prices to rise faster than tradable prices, which in turn implies an appreciation of the real exchange rate. However, this is clearly not the entire story. Estimates of the transition country Balassa-Samuelson effect range from 1-2 percent per year, leaving much of the observed appreciation unexplained. Likely candidates for this remaining appreciation include: price liberalization; demand-induced increases in nontradable prices owing to growing incomes; and catch-up from previous undervaluation. Evidence suggests that the latter point has played a significant role in the CECs, and that it may play an even more important role in Ukraine (Krajnyák and Zettlemeier, 1998).

68. **The remainder of the chapter will investigate this appreciation within the context of a large cross-country model of equilibrium real exchange rates.** Further, it draws on the results of this model to examine whether Ukraine can expect to experience a similar appreciation over the coming decade.

## **B. Estimation of the Real Equilibrium Exchange Rate (REER)**

### **Approach**

69. **Identifying a country's real equilibrium exchange rate—the relative price between domestic and foreign output that is consistent with internal and external equilibrium—is challenging in the best of circumstances.** It is particularly difficult in the case of transition countries, which are typically subject to transitory capital flows, contagion, and short-term price rigidities. Researchers have adopted a range of approaches to tackle this issue. A possible starting point is to use the implied purchasing-power parity exchange rate as an indicator of equilibrium. As mentioned above, the rate is approximately Hrv 1 per U.S. dollar, suggesting that the hryvnia is significantly undervalued. However, there is a considerable literature suggesting that PPP is not always an ideal model for estimating equilibrium rates, owing to the slow reversion of actual real exchange rates to a constant

level (as implied by the PPP assumption).<sup>24</sup> As a result, equilibrium analysis has tended to move away from PPP-based measures toward more sophisticated estimators, which focus instead on the link between real exchange rates and a select group of fundamentals. As these fundamentals change, so does the equilibrium real exchange rate.

70. **Typically, researchers use cointegration analysis to estimate a long-run relationship between fundamentals and the real exchange rate.** Once this relationship is established, inserting long-run or equilibrium values of the fundamentals then provides an estimate of the REER.<sup>25</sup> This approach, however, relies on a crucial assumption: it assumes that a stable long-run relationship between the RER and its underlying determinants can be gleaned from historical data. In the case of many transition countries, this assumption may be somewhat heroic, given that time-series data are often restricted to only 10 years of observations, and that these economies are subject to significant structural change throughout the sample period. Moreover, in the presence of an initial—possibly sustained—undervaluation, time-series techniques that rely on the relationship for the *observed* RER are likely to be biased when modeling the *equilibrium* rate.

71. **In the case of Ukraine, there is insufficient time-series data to capture such a long-run relationship, particularly given the structural changes of the past few years.** Moreover, if we were to use a time-series model to predict the future course of exchange rates, we would have to make a further assumption that the historical relationship would continue to hold in the future. Given the reform agenda still outstanding in Ukraine, this is unlikely to be the case, so backward-looking time-series analysis may prove to be a poor guide.

72. **The approach taken in this chapter, therefore, is to estimate the equilibrium relationship within a cross-country panel framework**—such an approach incorporates a wide range of country experiences, and allows us to draw directly from the lessons of other transition countries. In essence, the chapter will draw strongly from the work of Halpern and Wyplosz (1997) and Krajnyák and Zettlemeier (1998) who use large cross-country panels to estimate equilibrium exchange rates for a select group of transition countries. Both authors use a measure of the real exchange rate that is readily available: namely, the level of U.S. dollar wages in the manufacturing sector. This is linked directly to the concept of competitiveness and, unlike exchange rate indices, has the advantage of being comparable in levels across countries.

73. **As a proxy for the real equilibrium exchange rate, the model estimates the equilibrium level of dollar wages as a function of various productivity measures.** The equilibrium wage, therefore, represents the dollar wage that a country can “afford” based on

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<sup>24</sup> See Rogoff (1996).

<sup>25</sup> This is a common approach for Fund-staff country work. See: Mathisen (2003), Cady (2003), Spatafora and Stavrev (2003), Chobanov and Sorsa (2004).



its capital stock and overall level of development. If the *actual* dollar wage were less than the estimated *equilibrium* level, it would suggest that the wage rate is “overly” competitive and that, by extension, the real exchange rate is undervalued. Using this same methodology, with data for 1990-1995, Krajnyák and Zettlemeier (1998) found that the actual rate in Ukraine was only 28-33 percent of its equilibrium value in 1995. They concluded, therefore, that there was significant scope for real appreciation at that time.

**74. Although cross-country panel-data analysis has advantages over a time-series analysis for transition countries, such results should still be treated with caution.**

Countries within the sample are likely to be heterogeneous, to some degree. Any estimated relationship, therefore, can best be seen as outlining the *average* relationship across countries. So, moving from the general to the specific—i.e., using the average relationship to infer an equilibrium value for an individual country—may be subject to some uncertainty. Nonetheless, with this caveat in mind, the chapter will adopt the cross-country approach of Krajnyák and Zettlemeier (1998), drawing from a significantly longer data set.

**Data**

**75. The data cover the period 1990-2000, and extend across 85 countries.** For the dependent variable, we use the average monthly wage in the manufacturing sector. Wage data in local currencies were obtained from the ILO *International Statistics Yearbook*, and then converted into U.S. dollars using the annual average exchange rate from the *IFS*. For independent variables, the model follows Krajnyák and Zettlemeier (1998) and includes data for: purchasing-power-parity-adjusted GDP per capita, obtained from the *WEO*; the share of agriculture in GDP as a general measure of development, taken from the World Bank’s *World Development Indicators (WDI)* database; and the gross secondary-school enrollment rate as an indicator of human capital, also from the *WDI*. To test for robustness, we also include various institutional indicators, such as: the rule of law; the level of corruption; the degree of government effectiveness; and the quality of regulation—all obtained from the World Bank’s Governance Database.

**Specification**

76. The estimated equation is written below as (1).

$$wage_{i,t} = a_0 + \sum_{j=1}^3 a_j x_{ji,t} + a_4 OECD + \sum_{k=1}^T b_k cec_{i,t} + \sum_{l=1}^T c_l fsu_{i,t} + \mu_i + \varepsilon_{i,t} \quad (1)$$

77. Individual countries are represented by the index  $i=1\dots N$ , whereas the time dimension is represented by  $t=1\dots T$ . The independent variables  $x_j, j=1\dots 3$ , denote the economic determinants of equilibrium wages, and *OECD* is a dummy variable that is included as a further indicator of overall development. The error term includes  $\mu_i$ , which captures any unmeasured country-specific effects. The variables *cec* and *fsu* are transition dummies.

**78. A key assumption behind the above model is that, on average, the countries included in the panel are in equilibrium**—i.e., if we take a country at random we would

not be able to state *a priori* whether that country's wage was overvalued or undervalued. Clearly, this assumption may not be true for the transition countries in the 1990s, where wages were somewhat undervalued following the beginning of transition. Therefore, a dummy is introduced to account for the fact that these countries may not have been in equilibrium over the sample period. Also, the countries of the former Soviet Union are given a separate dummy from the CECs, as they entered transition somewhat later than the CECs. And further, the dummies are time varying, allowing for the fact that the extent of disequilibrium may have changed over time. It is important to note that, under the assumptions of the model, the dummies do not reflect structural or institutional differences that may impact on the level of wages. Such factors have already been captured by the main independent variables. Instead, the dummies reflect the extent of disequilibrium; i.e., the extent to which prices, and wages in particular, fail to reflect their full economic value. This, of course, implies that, when we use the model to calculate a country's *equilibrium* wage, we should *not* include the dummies in the calculation.

79. **As mentioned, the model allows for unmeasured country-specific effects.** If such effects existed, and we did not control for them, then the estimates would be inconsistent owing to specification error. To test whether this is the case, we compare the results of a pooled-OLS regression with those from a least-squares dummy variable (LSDV) estimation. We do not report the results here, but a Hausman test suggests that the results of the two models are significantly different, so that country-specific effects do, in fact, exist. This result is confirmed by the results of a Breusch-Pagan LM test which firmly rejects the hypothesis that the variance of  $\mu_i$  is equal to zero. Faced with the presence of these effects, the preferred approach is either fixed-effects (FE) or random-effects (RE) estimation.

80. **Before we move to the fixed-effects or random-effects estimators, we must first ensure that the model's independent variables are exogenous**—as both the FE and RE are inconsistent otherwise. To do this we first estimate the model in first differences (FD), thus sweeping away the impact of the country-specific term  $\mu_i$ . This model is then compared with a similar first-difference instrumental variables (FDIV) estimate, where the differenced independent variables are instrumented using their own lagged values in levels. A Hausman-style test of these two models shows that their results are not significantly different, suggesting that our variables are indeed (weakly) exogenous.

81. **A fixed-effects estimator is unlikely to be helpful, as it is necessary to estimate the value of various time-invariant dummy variables in order to calculate the equilibrium wage levels for a specific country**—the FE estimator necessarily sweeps away such variables, incorporating their impact into the country-specific effect. Furthermore, the random-effects estimator is more efficient. However, before we use a RE estimator, we must first ensure that  $\mu_i$  is not correlated with any of the model's independent variables, as this would make the RE estimator inconsistent. The results of both the FE and RE estimators are reported in Appendix 1, including the results of a Hausman test which again confirms that coefficients of the two models are not significantly different, and thus that the independent variables are uncorrelated with  $\mu_i$ . **Our preferred specification, therefore, is the random-effects estimator.**

### C. Results

82. **In general, the model's independent variables are significant and have the expected sign**—higher levels of per-capita GDP are associated with higher dollar wages (i.e., real exchange rates), whereas less-developed countries with a higher agricultural share typically have lower dollar wages. In contrast, the *school* variable appears to have the wrong sign. The coefficient is negative whereas countries with higher levels of human capital are typically expected to have higher wages. However, the coefficient is not significantly different to zero.<sup>26</sup> As expected, OECD countries tend to have higher wages. And the dummy *wagearner*, which identifies countries in which official data only covers wage earners rather than *all* employees (wage and salary earners), is negative. Testing the robustness of the model, the regressions were also run including various governance-related variables, but these proved not to be significant.

83. **The *cec* and *fsu* dummies show that, for much of the 1990s, the transition countries were out of equilibrium**—prices and wages in these countries were below the level that would properly reflect their true economic value. However, the extent of undervaluation seems to have been falling throughout most of the decade, as the countries slowly moved toward equilibrium. For the late 1990s, the CEC dummies become insignificant, suggesting that dollar wages in these countries were close to equilibrium and that, by extension, their real exchange rates had become broadly appropriate.

84. **For the countries of the former Soviet Union, however, the degree of undervaluation seems to have been somewhat more marked.** Moreover, although real exchange rates in these countries moved closer to equilibrium through the 1990s, the sudden widening of the gap after 1998 suggests that they may have experienced some overshooting following the financial crisis.

85. **Using the results of the model, we can calculate the equilibrium dollar wage for each country**—i.e., the wage (and exchange rate) we would expect for a country with similar characteristics. Extrapolating the CEC data to 2002, these estimates are shown in Table 1 below. It should be noted again that, given the heterogeneity associated with cross-country panel data, these quantitative estimates should be treated with caution. They might best be seen as indicating broad trends relative to equilibrium, and perhaps the relative position of different countries. Nonetheless it seems that, on the eve of accession to the EU, wages and real exchange rates in most CECs were close to equilibrium.<sup>27</sup>

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<sup>26</sup> Krajnyák and Zettlemeyer (1998) report similar puzzling results for the human capital variable.

<sup>27</sup> Our results are broadly similar, in terms of wage levels and cross-country rankings, to those of Schadler and others (2004) who found that, as of end-2002, there were no flagrant signs of over- or under-valuation.

Table 1. Equilibrium Dollar Wages 1990-2002

	1990	1992	1994	1996	1998	2000	2002
<i>Czech Republic</i>							
Actual wage	185	162	230	341	357	342	455
Equilibrium wage	506	498	515	573	585	613	651
Ratio	37	32	45	60	61	56	70
<i>Hungary</i>							
Actual wage	211	267	309	316	321	314	441
Equilibrium wage	402	408	427	448	503	557	604
Ratio	53	65	72	70	64	56	73
<i>Poland</i>							
Actual wage	105	196	218	309	333	404	483
Equilibrium wage	318	324	350	393	448	498	522
Ratio	33	61	62	79	74	81	92
<i>Slovak Republic</i>							
Actual wage	551	155	193	268	283	254	305
Equilibrium wage	442	408	414	472	524	549	588
Ratio	124	38	47	57	54	46	52
<i>Slovenia</i>							
Actual wage	329	533	616	784	795	724	817
Equilibrium wage	531	503	555	603	658	736	805
Ratio	62	106	111	130	121	98	101
<i>Ukraine</i>							
Actual wage	167	12	28	67	60	50	83
Equilibrium wage	326	303	245	222	218	229	260
Ratio	51	4	11	30	28	22	32

Source: Staff estimates.

86. **In Ukraine, it appears that the RER measure is significantly undervalued, even accounting for the fact that the equilibrium level is less than half the CEC average.** This, in turn, suggests that there is significant scope for future appreciation of the real exchange rate. In 2002, the actual dollar wage was \$83 per month, whereas the appropriate wage would have been around \$260—the implied degree of undervaluation is broadly in line with PPP-related indicators of Ukraine’s exchange rate, which suggest that the hryvnia may be undervalued. Following a sharp decline after independence, the actual wage slowly moved toward equilibrium. However, the upward trend was interrupted during the 1998 financial crisis, again suggesting some degree of overshooting.

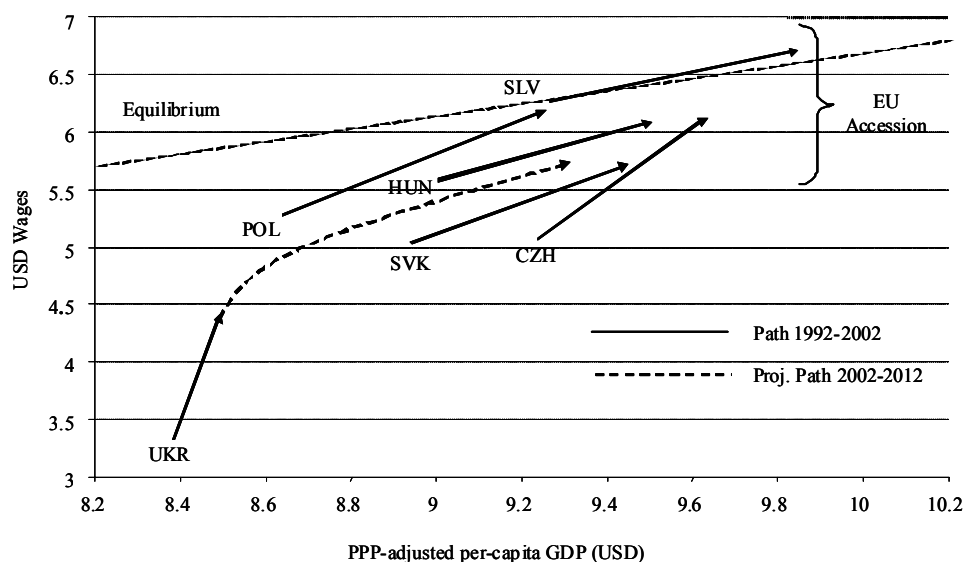
#### D. Policy Implications

87. **For most CEC countries, these results support the view that their exchange rates are broadly appropriate.** This is, of course, an important issue for the new EU members, as they will need to choose a suitable parity rate for their eventual adoption of the euro—a parity rate that is too low entails added risks of overheating and inflation, whereas a rate that is too high might foster lower growth and added unemployment. Moreover, although some of the real appreciation of the 1990s reflected upward movement in equilibrium rates, owing to

Balassa-Samuelson effects and similar influences, much of the appreciation reflected previous under-valuation, and a gradual move to equilibrium.

88. **For Ukraine, the results highlight the amount of real appreciation that may be expected.** Given the fact that Ukraine remains out of equilibrium—similar to most CECs in the early 1990s—there is still significant scope for appreciation over the next decade. Indeed, drawing on the experiences of the CEC countries, we can project a possible adjustment path (Figure 2).

Figure 2. Equilibrium and Actual Dollar Wages, 1992-2002  
(in logs)



Source: Staff estimates and projections.

89. **The projected path is based on extrapolated changes in Ukraine’s development indicators, along with a forecast 5 percent GDP growth rate.** It also assumes an out-of-equilibrium adjustment broadly equivalent to that of the Czech Republic in the 1990s (in terms of deviation from equilibrium, Ukraine in 2002 was comparable with the Czech Republic in 1992). Again, using the dollar wage as a measure of the RER, the projection implies significant real appreciation, approximately equal to the average real appreciation for East European transition countries between 1992-2002 (Lipschitz and others, 2002). Also paralleling the experience of these countries, most of the projected appreciation reflects previous undervaluation.

Table 2. Forecast Actual and Equilibrium Dollar Wages, 2002-12

	1998	2002	2004	2006	2008	2010	2012
<i>Ukraine</i>							
Actual wage	60	83	106	136	174	223	285
Equilibrium wage	218	260	295	320	347	376	407
Ratio	28	32	36	42	50	59	70

Source: Staff estimates.

90. **Although the projected appreciation is somewhat striking, enhanced structural reform may boost the real exchange rate even further.** The projected path of *equilibrium* exchange rates is based on the medium-term macroeconomic framework, which foresees a sustainable growth rate of 5 percent. If the authorities were to redouble their efforts at improving the business climate, Ukraine would most likely enjoy the type of FDI-dominated capital inflows experienced by the CECs, with added implications for productivity, growth, wages and the real exchange rate. This would be represented by an appreciation of the *equilibrium* level that is larger than forecast. Similarly, the projected pace of *adjustment to equilibrium* is necessarily imprecise. In the case of the CECs and Ukraine, the gap between equilibrium and actual wages represents a gap between actual prices and their true economic value. Sustained deviations from equilibrium, therefore, represent an underlying absence of competitive pressure within these economies. Over time, we can expect prices to move to their competitive level, but the pace at which they do so is somewhat uncertain. In this chapter, we have taken a representative CEC country as a rough guide, but if the Ukrainian authorities were to strengthen their competition-policy efforts and further encourage the development of market institutions, the pace of adjustment might accelerate.

91. **The scale of the real appreciation implied in this chapter highlights the potential tension between the authorities' inflation and exchange-rate objectives, bringing into focus the need to move quickly to greater exchange-rate flexibility.**

Appendix I. Model Estimations  
(Dependent Variable: monthly average manufacturing wages (USD))

Variable	Specification	
	Fixed Effects	Random Effects
GDP	0.66 (0.088)***	0.659 (0.078)***
Agriculture	-0.155 (0.070)**	-0.127 (0.055)**
School	-0.151 (0.085)*	-0.088 -0.077
OECD	--	1.028 (0.167)***
cec91	-0.107 (0.154)	-0.162 (0.144)
cec92	-0.835 (0.150)***	-0.891 (0.139)***
cec93	-0.623 (0.148)***	-0.68 (0.135)***
cec94	-0.391 (0.148)***	-0.449 (0.135)***
cec95	-0.179 (0.144)	-0.24 (0.132)*
cec96	-0.113 (0.144)	-0.173 (0.132)
cec97	-0.166 (0.150)	-0.221 (0.137)
cec98	-0.114 (0.156)	-0.169 (0.143)
cec99	-0.084 (0.157)	-0.138 (0.144)
cec00	-0.151 (0.158)	-0.204 (0.144)
fsu91	-0.21 (0.148)	-0.042 (0.140)
fsu92	-3.2 (0.146)***	-3.029 (0.137)***
fsu93	-2.695 (0.148)***	-2.523 (0.139)***
fsu94	-2.394 (0.153)***	-2.219 (0.143)***
fsu95	-2.051 (0.153)***	-1.873 (0.143)***
fsu96	-1.671 (0.153)***	-1.493 (0.143)***
fsu97	-1.468 (0.212)***	-1.286 (0.204)***
fsu98	-1.566 (0.172)***	-1.39 (0.163)***
fsu99	-1.605 (0.211)***	-1.418 (0.203)***
fsu00	-1.753 (0.186)***	-1.555 (0.176)***
wageearner	--	-0.329 (0.156)**
Constant	1.263 (0.823)	0.724 (0.693)
Observations	711	711
Number of Countries	84	84
R-squared	0.7	
p-value for Hausman test		0.93
Standard errors in parentheses		
* significant at 10%; ** significant at 5%; *** significant at 1%		

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#### IV. UKRAINE: MEDIUM-TERM FISCAL PRIORITIES<sup>28</sup>

92. Ukraine has achieved a remarkable fiscal consolidation since 1998. So much so that the general government debt ratio is now well within sustainable levels, and attention can turn away from further consolidation towards medium-term fiscal-structural reform challenges. There are many costly initiatives that await, and some good options to help covers costs, but ultimately the government will need to prioritize. Institutional constraints also argue for a cautious approach.

93. In what follows, Section A describes the present situation and medium-term baseline. Section B provides preliminary cost estimates for various reform initiatives. Section C discusses possible measures to cover costs. Section D discusses other options to help close the remaining financing gap. Section E discusses various institutional constraints to implementing a fully-financed reform agenda, and Section F concludes.

##### A. The Present Fiscal Situation

94. **Since the 1998 crisis, Ukraine has experienced a sharp decline in the general government debt-to-GDP ratio.** The general government debt ratio has fallen from 54 percent of GDP to a projected end-2004 value of about 25 percent of GDP. The steep reduction was driven by a sharp reduction in the expenditure-to-GDP ratio between 1997-99 (which helped generate small primary surpluses of 0-2 percent of GDP in 1999-2003); the receipts from the privatization program (which averaged 1¼ percent of GDP per annum); an ex-post negative real interest rate on the government debt stock (-6¾ percent); and high economic growth (6¾ percent per annum).

95. **Stabilizing the public debt ratio at the present level of about 25 percent of GDP is appropriate for Ukraine's situation.** At 25 percent, the debt is comfortably below the 40-50 percent of GDP threshold identified in the recent debt intolerance literature,<sup>29</sup> and well below the 41 percent of GDP debt level where Ukraine was forced to restructure its debt in 1998. Some comfort zone is necessary: there are suggestions in the debt tolerance literature that strong fiscal institutions may help countries to carry relatively higher debt ratios; Ukraine does not fit the profile of an institutionally strong country.<sup>30</sup>

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<sup>28</sup> Prepared by Mark Flanagan, with input from Ihor Shpak (Kyiv Resident Representative's Office).

<sup>29</sup> See Reinhart, Rogoff, and Savastano (2003) and IMF (2004).

<sup>30</sup> The most recent available country policy and institutional assessment by the World Bank (2001) shows a large gap in the public sector management area between Ukraine and more advanced EU accession economies (whose average debt load is expected to amount to 32 percent of GDP at end-2004). Ukraine's average score was 3, versus an average of 4.7 for the EU accession countries. Since 2001, the gap has shrunk: Ukraine has improved in the  
(continued...)

96. **Ukraine has proposed a 2005 general government budget deficit of 1.9 percent of GDP, a level which would not stabilize the debt ratio in the medium to long term.**<sup>31</sup> This would produce a primary deficit of close to 1 percent of GDP. Given the present debt level of about 25 percent of GDP, and assuming medium-term growth of about 5 percent of GDP, and a real interest rate of about 5¼ percent (above recent levels, and consistent with the present 325 basis points spread on Ukrainian bonds), the debt stabilizing primary surplus would be about ¼ percent of GDP.

97. **However, due to several temporary factors, limiting the deficit to 1.9 percent of GDP would lead the debt ratio to decline through 2010 (to about 18 percent of GDP).**<sup>32</sup> First, the carry-over of historical debt at lower interest rates would ensure that the real interest rate remains lower than the projected growth rate through 2010. Second, real exchange rate appreciation (see Chapter III) will either lead to revaluation of the two-thirds of debt which is foreign (in the event of nominal appreciation), or even lower real interest rates (in the event of higher domestic inflation). Third, asset sales are likely to continue at a brisk, albeit declining pace. Indeed, the state still owns some 4,000 public enterprises. Transactions in the pipeline for 2005, including Telekom and the Odessa-by-Sea fertilizer plant, will likely generate some 1½ percent of GDP in proceeds alone.

#### **B. Medium-Term Fiscal-Structural Challenges and Their Cost**

98. **The medium-term fiscal baseline for Ukraine thus appears very positive, but this abstracts from the cost of many needed fiscal structural reforms.** While details and plans are still being developed in many areas, in this section, some attempt is made to collect what is known about the impact of tax rate reductions, the replacement of obsolete infrastructure, public administration reform, and social spending enhancement. Initiatives in these areas could together cost almost 11 percent of GDP annually by 2010 (Table 1). This would clearly be infeasible in the absence of other offsetting measures.

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‘quality of budget and financial management’ category, reflecting implementation of the budget code, but this has been offset by increasing problems with revenue mobilization (i.e., the VAT refund problem).

<sup>31</sup> In mid-September, the authorities announced that pensions would be lifted to the subsistence level of Hrv 284 per month. Financing such an increase could add 3½ percent of GDP to the deficit in 2005.

<sup>32</sup> In general, and abstracting from asset sales, the debt would evolve according to  $\Delta \text{Debt} = (r - g) \text{Debt} - \text{pb}$ , where  $r$  is the real interest rate,  $g$  is the real economic growth rate, and  $\text{pb}$  is the primary balance.

Table 1. Ukraine: Annual Cost of Structural Reforms  
(In percent of GDP)

	2006	2007	2008	2009	2010
Total costs	4.23	6.31	7.75	9.19	10.64
Tax reform	0.50	1.75	2.00	2.25	2.25
VAT rate	0.50	0.50	0.50	0.50	0.50
Payroll taxes	...	1.25	1.25	1.25	1.25
Trade tax reform	...	...	0.25	0.50	0.50
Infrastructure	2.50	2.50	2.50	2.50	2.75
Transportation	1.50	1.50	1.50	1.50	1.50
Communal services	1.00	1.00	1.00	1.00	1.00
Social sector	...	...	...	...	0.25
Social spending	0.25	0.50	0.75	1.00	1.25
Education	0.05	0.10	0.15	0.20	0.25
Health	0.20	0.40	0.60	0.80	1.00
Civil service pay	0.98	1.56	2.50	3.44	4.39

Sources: Ukrainian authorities; and Fund staff estimates and projections.

99. **Tax rate reductions, without a compensating effort to broaden the tax base (see below), could entail annual costs of 2¼ percent of GDP.** The large informal sector—which some estimates place as high as 33 percent of GDP—is an indication that tax rates need to be cut. While progress has been made for income taxes, high VAT and payroll tax rates remain to be addressed. The baseline already incorporates the planned VAT rate cut from 20 to 17 percent in 2005, but the extra cut planned for 2006, to bring the rate to 15 percent, would cost ½ percent of GDP. Regarding payroll taxes, total rates range from 39-41 percent, and some consideration is being given to reducing them. Cutting by 5 percent to 35 percent would entail annual costs of about 1¼ percent of GDP.<sup>33</sup> Finally, the cost of trade tax reform must be borne in mind, particularly given Ukraine's aim to join the WTO. As an indication of possible costs, if Ukraine were to cut its average effective tariff from 7 to 5 percent and eliminate half of its export duties, the annual loss to revenues would be about ½ percent of GDP. Payroll and trade tax reductions are assumed to be phased in after VAT rate reductions.

100. **After a decade of underinvestment, Ukraine suffers from a significant infrastructure rehabilitation gap, which could demand an extra 2½ percent of GDP in**

<sup>33</sup> This could accommodate deeper cuts in existing payroll taxes, to allow the introduction of a new payroll tax for health care (an option which the authorities have considered).

**annual spending.** In the transportation area, 90 percent of the road network is in need of urgent repair, as are 40 percent of bridges. To maintain and expand the transportation network, the authorities estimate that they would need an extra 1½ percent of GDP per year for some time. In the communal services area, half of water supply systems are either fully depreciated, or in need of urgent repair, and the situation is probably similar for heating.<sup>34</sup> The public transportation fleet is also aging (the average bus age for most cities is 12-15 years). The authorities plan to spend an additional 1 percent of GDP per year between 2005-2010 to address these and other communal services deficiencies. While some of the transportation and communal services spending would be expected to tail off after 2010, investments in social infrastructure are likely to pick up. Indeed, there has been negligible investment in school upgrades since 1990, and almost no investment in schools in rural areas: the total need could amount to 2½ percent of GDP, beginning with very small amounts late in the decade.<sup>35</sup>

**101. Partially redressing large civil service pay inequities, without cutting employment (as discussed below), would cost the government over 4 percent of GDP per year.** At 9¾ percent of GDP and 26 percent of total general government expenditures, the wage bill is not out of line with EU accession countries (an average of 9¾ percent of GDP and 23¾ percent of spending). However, civil servants in Ukraine are very poorly paid, receiving only 25 percent of what the private sector is thought to receive (including unreported income).<sup>36</sup> The authorities do plan a pay reform: they would reorient away from the 70-80 percent of pay which is now based on non-transparent and horizontally inequitable bonuses and allowances towards a system 90 percent comprised of basic pay. They also wish to decompress, although the present compression ratio, at 9.3, is not badly out-of-line with international standards.<sup>37</sup> Bringing average wages to about 50 percent of private sector levels by 2010 (still well shy of the 80 to 90 percent typical in more advanced economies), would raise the wage bill by 4¼ percent of GDP to about 14 percent of GDP.<sup>38</sup> With no offsetting action, this would leave Ukraine well out of line with regional comparators, and likely crowd out other spending.

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<sup>34</sup> Full depreciation in an accounting sense does not imply unusable.

<sup>35</sup> See World Bank (2004).

<sup>36</sup> See Grant (2003).

<sup>37</sup> The compression ratio compares the compensation of the highest and lowest paid civil servants. A ratio of 12-13 is thought necessary to provide adequate incentives for staff to take on additional responsibilities.

<sup>38</sup> This assumes that 2 percent of the measured annual economic growth over the next 6 years is recognition of informal economy activity, and that payroll taxes are cut by one eighth.

102. **Education and health care spending would need to rise by 1¼ percent of GDP in order to attain levels observed in more advanced transition economies.** The authorities' work is not well advanced in the health and education areas, but some convergence to higher income regional comparators is likely over time, as Ukraine's own per capita income rises.

- *Education spending* amounts to about 4½ percent of GDP, below EU accession comparators (5¾ percent of GDP average). Informal payments are widespread, presenting barriers to access. Wage increases (matched with employment reductions—see below) would add ¼-½ percent of GDP to education spending, and capital projects, another ¼ percent of GDP. Another ¼ percent of GDP would help address operations and maintenance deficiencies; for instance, textbook provision and utilities (though more work is needed in this area to assess specific needs). This would place education spending in Ukraine broadly in line with accession countries.
- *Health spending* falls well short of levels in EU accession countries, at 3.7 percent GDP (versus 5.6 percent). Health statistics are poor in Ukraine, and show a rising incidence of disease, including AIDS and tuberculosis. As in the education sector, informal payments present a significant barrier to access. Higher wages (again matched by employment reductions—see below) would raise health spending by ½ percent of GDP.<sup>39</sup> Nonetheless, another 1 percent of GDP would be needed to approach comparators, money which would allow better equipment to be procured, cover operations and maintenance costs and help reimburse pharmaceutical expenses (in both cases, now largely borne by patients).

103. **In addition to education and health costs, pensions and social privileges represent contingent social spending liabilities.** If political pressures lead to increases in pension replacement ratios and legal pressures force a full funding of social privileges, costs could mount to well over 5 percent of GDP annually:

- At present and into the next decade, *pensions* do not present a significant problem for Ukraine. Pensioners suffer no greater rate of poverty than the population as a whole.<sup>40</sup> However, given current demographic trends, the relatively low income replacement ratio of 35 percent is set to fall over time to 30 percent or lower by 2040. If political pressures force an increase, costs would be significant in the short term. For every

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<sup>39</sup> The experience in the Czech Republic suggests that this may also curtail informal payments. See World Bank (2002).

<sup>40</sup> See World Bank (2003).

5 percentage point increase in the income replacement ratio, the annual costs would be about 1¼ percent of GDP.<sup>41</sup>

- Budgeted *social benefits and privileges* amount to some 2 percent of GDP at present. This reflects the authorities restriction of privileges to individuals at or below the subsistence level of income (problems with the targeting of benefits nonetheless remain). However, the constitutional court has recently called this restriction into question. If the government is in fact forced to fund all social privileges, the latest estimate of additional annual cost (which accounts for the recent re-registration effort and elimination of double-counting) would be about 4¼ percent of GDP.

### C. Identifying Resources to Cover the Cost of Fiscal-Structural Reforms

104. **There are a variety of options open to the authorities to help finance the cost of fiscal structural reform** (Table 2). Indeed, it will be important to adopt these measures prior to undertaking related structural reforms. For instance, tax base broadening should be linked to tax rate reductions, and employment reductions linked to higher civil service pay. However, the options discussed below do not fully cover costs, and leave an unfinanced gap, perhaps approaching 3¼ percent of GDP.

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<sup>41</sup> In mid-September, the authorities announced that pensions would be lifted to the subsistence level of Hrv 284 per month. This increase raised the replacement ratio to 50 percent, at a gross price of 3½ percent of GDP per annum.

Table 2. Ukraine: Resources for Structural Reforms  
(In percent of GDP)

	2006	2007	2008	2009	2010
Total costs	4.23	6.31	7.75	9.19	10.64
Total identified resources	2.37	4.43	5.47	6.58	7.48
Tax system	0.75	1.85	1.85	1.85	1.85
Income tax to 15%	...	0.60	0.60	0.60	0.60
Increase excises	...	0.50	0.50	0.50	0.50
Base broadening	0.75	0.75	0.75	0.75	0.75
Expenditure reallocations	1.17	1.93	2.77	3.68	4.38
Subsidy cuts	0.25	0.50	0.75	1.00	1.00
Other recurrent cuts	0.18	0.28	0.39	0.52	0.66
Employment cuts	0.74	1.15	1.63	2.15	2.72
Pension reform	0.45	0.65	0.85	1.05	1.25
Raise retirement age	0.20	0.40	0.60	0.80	1.00
Base broadening	0.25	0.25	0.25	0.25	0.25
Residual unfinanced gap	1.86	1.88	2.28	2.62	3.16
<i>Memorandum items</i>					
Net impact on tax ratio	0.50	0.35	0.10	-0.15	-0.15
Net impact on expenditure ratio	2.36	2.23	2.38	2.47	3.01
Net impact on recurrent spending	-0.14	-0.27	-0.12	-0.03	0.26
Net impact on the wage bill	0.24	0.41	0.87	1.29	1.67

Sources: Ukrainian authorities; and Fund staff estimates and projections.

105. **The VAT base can be broadened, and income and excise tax rates raised, to help pay for VAT and payroll tax rate reductions.** With a revenue ratio of 36 percent of measured GDP, and a substantial informal sector, the burden that government places on the economy in Ukraine is not high. Even if the revenue ratio is maintained as actual and measured GDP converge, it would be slightly below the levels of eastern European comparators, and would fall well below them if 2½ percent of GDP in revenues were to be cut as discussed above.<sup>42</sup>

- There is significant scope for upfront tax base broadening: ¾ percent of GDP in VAT preferences would remain even after permanent elimination of ½ percent of GDP in

<sup>42</sup> Bulgaria, Croatia, Estonia, Latvia, Lithuania, Moldova, Romania, Russia, Slovenia combined have an average general government ratio of about 37½ percent of GDP.

preferences planned for 2004.<sup>43</sup> Key areas where exemptions could be removed include, publishing, firms registered in Chernobyl affected areas (an exemption subject to wide abuse), and automobiles. Base broadening prospects are not confined to the VAT:  $\frac{1}{4}$  percent of GDP in import and profit tax preferences could also be eliminated, targeting publishing and free economic zones.<sup>44</sup>

- Regarding the income tax, so long as legislation is not reversed, the rate will rise to 15 percent in 2007, generating over  $\frac{1}{2}$  percent of GDP in additional annual revenues. Excise tax collections are low in Ukraine relative to eastern European comparators, at  $2\frac{3}{4}$  percent of GDP (versus  $3\frac{1}{2}$  percent). This suggests some scope to raise rates (for instance, on automobiles, where some excises are now suspended). An extra  $\frac{1}{2}$  percent of GDP in additional annual revenues could be targeted.

**106. Civil service employment can be significantly scaled back to help fund civil service pay increases.** General government employment in Ukraine, at close to 9.1 percent of the population and 21.2 percent of employment, is well above the average in EU accession countries (7.4 percent and 16.4 percent). At an attrition rate of 4 percent per year, a typical figure, there is ample scope to both reduce and realign employment over time. If  $3\frac{1}{2}$  percent per year of this was devoted to reduction,  $\frac{1}{2}$  percent (amounting initially to some 22,000 persons) could be hired, while other employment needs could be covered by transferring employees from overstaffed functions.<sup>45</sup> The total employment reduction would amount to almost 20 percent by end-period, entailing annual savings of about  $2\frac{3}{4}$  percent of GDP (at the higher wage rates suggested above).<sup>46</sup> While this would leave employment in the range of EU accession countries, attrition-based reductions in employment would need to continue 3-4 more years to bring the wage bill down towards the regional average.

**107. New pension reforms can be enacted to offset the impact of any payroll tax cut on the pension system.** Phasing in an increase in the retirement age for women from 55 to 60 years (over a period of 10 years) could lift the balance by over 1 percent per year by 2010. There is also scope to expand the pension contribution base to those taxpayers operating under the simplified and fixed agricultural tax regimes (which could raise 0.2 percent of GDP in new revenues). While not a public sector measure, full budget transfers to cover non-

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<sup>43</sup> This figure has been adjusted for projected declines in the VAT rate.

<sup>44</sup> Import exemption figures have been adjusted for a postulated decline in tariffs.

<sup>45</sup> It would be important to conduct a functional review of government to help identify employment surpluses.

<sup>46</sup> Separate savings may also be realized due to a planned 20 percent cut in military personnel. A full discussion of defense reform is, however, beyond the scope of this paper.



funded pension types could lift pension fund revenues by  $\frac{1}{4}$  percent of GDP annually (and thus the payroll tax cut would be fully financed at the level of the pension fund).

108. **Recurrent spending reallocations could provide additional resources for education and health initiatives.** *Subsidies* could be cut by 1 percent of GDP. At present they amount to about  $1\frac{1}{2}$  percent of GDP, including 1 percent to the coal sector and  $\frac{1}{2}$  percent of GDP to the agricultural sector. Agricultural subsidies may be politically difficult to cut, in view of present international practice, but the coal sector could be targeted, and a gradual phase out provided to allow the sector to adjust. In addition the large cuts in employment proposed above imply less of a need for *operations and maintenance spending*. If this support spending could be cut by just half as much, proportionately, as employment would be, some  $\frac{1}{2}$  percent of GDP in annual savings could be realized. A good budget process (discussed below) would help to identify where spending was no longer needed.

#### **D. Options to Address the Remaining Resource Gap and Other Potential Costs**

109. **There are options to help address both the remaining resource gap and potential contingent spending liabilities, but ultimately some reforms will need to be scaled back.** While there may be scope to finance some additional public investment, financing the whole gap of  $3\frac{1}{2}$  percent of GDP would not be feasible: this would quickly lead to sharp increases in the public debt ratio, to levels well above what would be considered appropriate for Ukraine. Other options to generate resources should be pursued, but are too uncertain in their timing and yield to be pre-programmed. Measures to contain contingent spending liabilities will also need to be implemented, lest these liabilities otherwise sidetrack the whole process.

110. **Consideration could be given to financing some additional public investment.** An additional 1 percent of GDP per year in public investment could in fact be financed between 2005-10 without increasing the debt ratio by end-period. Some institutional constraints would need to be overcome, as discussed below, and this approach would need to wind down (since the factors underlying the baseline debt decline are temporary). Linking financing to additional public investment would be attractive in one sense: it would emphasize the aim to preserve government net worth.

111. **Tax administration and better management of state assets offer the prospect for significant gains, but international and Ukrainian experience indicates that these channels should not be relied upon ex-ante:**

- There is substantial scope for *tax administration* improvements in Ukraine. Looking only at the VAT, the productivity ratio of only 0.3 compares poorly with the 0.37 average in more advanced central and eastern European countries.<sup>47</sup> While this may seem a trivial difference, it amounts to 1 percent of GDP per year in revenue

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<sup>47</sup> The productivity ratio is defined as total VAT revenue as a percentage of GDP divided by the standard rate.

collections.<sup>48</sup> Gains of a similar magnitude may be available through other taxes. However, international experience with tax administration reform is that the gains are uncertain in both magnitude and timing.

- There is also great scope for improving the *management of public assets*. Eliminating the estimated quasi-fiscal energy sector deficit of ½ percent of GDP in the electricity and heating sectors would allow for extra investment in this sector and for increased dividend payments. For the 2,600 state enterprises operating under the umbrella of ministries and central and local executive agencies,<sup>49</sup> data for 2003 show a *decline* in profitability by about ¼ percent of GDP to 1¼ percent of GDP total. Indeed, despite stronger than expected economic growth, 41 percent of enterprises did not meet their financial targets, and one-third were loss-making. The government is presently servicing some 2 percent of GDP of state enterprise debt. With many of the profitable state enterprises likely to be privatized between 2005-10, some improvement in the performance of remaining enterprises is necessary just to compensate lost dividend payments. If their performance were to be improved, they would also be more marketable, and privatization could be accelerated. Higher proceeds would be a useful way to finance one-off public investments, but Ukraine's past problems with overestimation illustrates the need to receive them before programming their use.

112. **With a difficult-to-bridge resource gap, it will also be important for the government to take measures to contain additional contingent spending liabilities.** In this context, it would be possible to improve the income replacement offered by pensions by increasing the voluntary component of pensions savings (accelerating development of the second pension pillar). Further parametric changes (i.e., additional increases in retirement age) could also be considered. There should also be ample scope to better target social spending. Looking at social privileges, as noted in recent parliamentary deliberations, despite efforts to tie receipt to a below subsistence level income, the bottom income quintile gets only 8 percent of the privileges by value, while the top quintile gets 35 percent.

#### **E. Other Constraints to Accelerating Fiscal-Structural Reforms**

113. **While the major constraint to fully adopting structural reform initiatives is a lack of resources, a number of other issues argue for some delay of initiatives.** There are key institutional impediments to accelerating debt-financed investment, and many institutional changes would be needed to fully support recurrent spending reprioritizations. The discussion here identifies the issues; a full discussion of each is beyond the scope of this paper.

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<sup>48</sup> The Ukrainian ratio has been adjusted for the recommended removal of most remaining exemptions, and the revenue estimate adjusted for the expected reduction of the VAT rate.

<sup>49</sup> The state property fund also manages or holds an interest in, another 1,400 companies.

**114. Pressing ahead with an expanded investment program, especially if it partly debt-financed, should await several institutional improvements:**

- There is a need to improve project management—selection, appraisal, and implementation—and to buttress the process against political interference. Poor selection of projects will not deliver the desired return. Poor costing may undermine all projects, as budget allocations are spread too thin.
- Fiscal policy would need to be anchored in some fashion. Loosening targets to pay for one-off investment could lead to indiscipline on the recurrent side. In this context, establishing targets for the current balance could be useful, and a number of countries have taken this route. It would also be important to maintain strict controls over subnational borrowing, to ensure municipalities' capacity to repay.

**115. Recurrent policy reforms would also benefit from some delay to put in place supporting institutional reforms (many of these were noted in the recent Fiscal ROSC):**

- A fully developed *medium-term expenditure framework*, called for in the budget code but not yet fully realized, would greatly assist in reprioritizing spending in a multi-year context. With forward estimates now in place, the challenge will be to force line agencies to justify and show, in their forward planning, continuing programs and their costs, alongside new programs and their costs. The multi-year ceilings identified then need to be enforced.
- A fully developed and reoriented *audit function* would help to identify the effectiveness of programs in achieving their stated goals, and whether there might be more effective means. Ineffective programs could become candidates for cutback.
- Adjustments need to be introduced to Ukraine's *intergovernmental framework*. More objective criteria need to be developed for the allocation of capital grants, to assist lower levels of government in their budget planning.
- *State enterprise governance* must be improved. A system for timely and regular monitoring of activities needs to be introduced; accounting needs to be upgraded; a clear dividend policy established; and a system established for systematically reviewing the continued use of public assets. Commercial goals need to be clearly established, independent regulatory regimes strengthened (and introduced where necessary) and compensation mandated and granted for any non-market activities.

**116. There are some clear sequencing issues that must be respected.** Given the political economy of some expenditure reform, social spending reforms should be in place concurrent with, or before, subsidy (and thus enterprise restructuring) reforms take place. Without a better safety net, the pressures from interest groups for reversals would likely be intense.

## F. Conclusions

117. **While Ukraine has made enormous progress in restoring the health of public finances, huge fiscal challenges loom.** Work remains to be done in defining the specifics of the full fiscal-structural reform agenda (especially in social spending areas). However, based on the authorities' work, and comparisons with more advanced transition economies, addressing tax, infrastructure, civil service, pension and social spending deficiencies could cost the budget almost 11 percent of GDP annually by 2010. Not addressing them would subvert economic growth and curtail progress in reducing poverty.

118. **This paper has provided some well-defined measures that could cover perhaps two-thirds of likely reform costs, and has discussed strategies to fill the remaining gap.** There are well defined tax, public employment, subsidy and pension changes which can be taken to neutralize much of the impact of the reform measures above. There is also scope to finance some additional public investment, but an annual gap of some 2 percent of GDP would remain. Other measures, covering tax administration and the management of state assets could help to close much of the remaining gap, but involve significant institutional changes and cannot be relied on ex ante.

119. **Beyond the need to fully develop reform plans and the existence of resource constraints, institutional considerations also argue for some delay in implementing structural reforms.** Management capabilities need to be built up for an expanded investment program, and budget process reforms need to be introduced to facilitate planning, including the sequencing of measures. In this constrained environment, the political process, supported by a better medium-term budgetary analysis of costs, will need to sort out near-term reform priorities.

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## V. CAPITAL MARKETS IN UKRAINE<sup>50</sup>

120. **While financial intermediation through the banking system has grown rapidly over the past four years, capital markets remain small and illiquid.**

Capitalization, trading activity, and the range of financial instruments are very limited in all segments of regulated capital markets in Ukraine. The paper provides an overview of the markets for domestic government securities, corporate bonds, and equities, and discusses issues to foster their development.

121. **More developed capital markets would be an important ingredient for a stable and well-functioning financial system.** Fixed income markets would help strengthen the monetary transmission mechanism, facilitate risk diversification for investors, in particular for the banking sector, and provide funding in case access to international capital markets would be limited or prohibitively expensive. Policies that would foster the development of those markets include reducing the fragmentation of government securities and developing benchmark issues and establishing a strong legal and regulatory framework that provides a more transparent and certain environment for investors. This is also a crucial component for the development of the equity market.

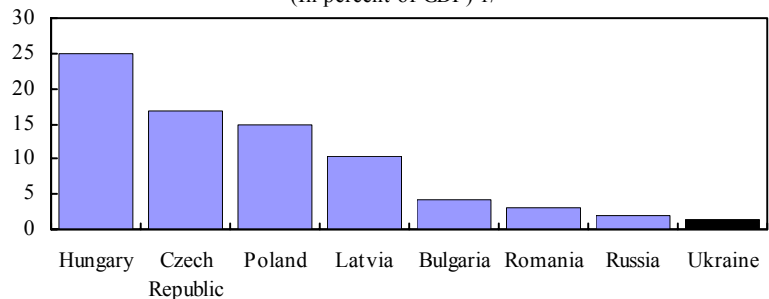
### A. Domestic Government Securities Market

122. **The stock of domestic government securities is low and secondary markets are thin.** Following the government bond restructuring in 2000, a lack of appetite and high risk premiums for government securities constituted a financing constraint that forced the government to maintain a tight fiscal stance. With the recently regained access to international capital markets—the government issued \$2.1 billion Eurobonds in 2003 and 2004—the government has resorted predominantly to external financing. Moreover, investors tend to hold domestic securities until maturity so that secondary market turnover has been low.

#### Stock of government securities

123. **Domestic government securities held outside the central bank amounted to just over 1½ percent of GDP at end-2003** (Table 1) which is at the bottom end in international comparison (Figure 1). The vast majority (more than 90 percent) of

Figure 1. Stock of Tradable Government Securities  
(In percent of GDP) 1/



Sources: National authorities, ECB (2002), and staff estimates.

1/ 2003 for Bulgaria and Ukraine, Sept. 2003 for Romania, 2002 for Russia, Hungary, and Poland, 2001 for Latvia and Czech Republic.

<sup>50</sup> Prepared by Andrea Schaechter.

securities is held by banks. In 2004, nonresident investors have returned to the market—for the first time since the crisis—attracted by comparably high maturities and Ukraine’s strong macroeconomic performance. While their share remains low at less than 1 percent they have acquired 13 ½ percent of new issuances in the first six months of 2004 (Table 2).

Table 1. Ukraine: Stock of Domestic Government Securities, end-June 2004

Type	Maturity	Volume (Millions of hryvnias)	Interest Rate (In percent)
Regular securities	Up to three months	0	...
	Three months to one year	322	9.3
	More than one year to 18 months	1,113	11.4
	More than 18 months	2,360	9.3
	Other 1/	99	16.0
VAT refund securities	Five years	365	9.0 2/
Restructured securities	Monthly repayment until 2010	6,906	8.7 3/
<b>Total</b>		<b>11,165</b>	

Sources: National Bank of Ukraine; and Ministry of Finance.

1/ Savings bonds issued to retail investors.

2/ The coupon rate of the VAT refund securities is set at 1.2 times the NBU's discount rate, which at end-June 2004 was 7.5 percent.

3/ The coupon rate is indexed to past and expected inflation (see Box 1).

Table 2. Ukraine: Investors in Government Securities, 2001-04  
(In percent of total stock)

	2001	2002	2003	End March 2004
Commercial banks	10.7	20.0	22.6	21.2
NBU	83.1	78.5	75.0	67.5
Institutional investors	0.0	0.0	0.0	0.0
Other residents	6.1	1.4	2.4	10.7
Nonresidents	0.0	0.0	0.0	0.6

Sources: National Bank of Ukraine; and Ministry of Finance.

124. **Delays in the securitization of the government’s VAT refunds arrears have not yet given the expected boost to the stock of domestic public bonds.** At end-2003, VAT refund arrears amounted to Hrv 1.9 billion and the government has begun since January 2004 to offer taxpayers securities as compensation. The securities have a nominal value of Hrv 1,000 each and a maturity of five years. Coupon payments are annual at a rate of 1.2 times the NBU’s discount rate. Twenty percent of face value is amortized annually beginning end-2004. As of end-June, 2004, about Hrv 400 million securities had been issued to taxpayers.<sup>51</sup>

<sup>51</sup> Preliminary data indicate that until end-August 2004 VAT refund arrears of Hrv 1.9 billion had been securitized.

### Box 1. Restructured Government Securities

**Restructured bonds were first issued in February 2000 to replace existing government securities and are held by the NBU.** Three types of securities exist (see table below). The bulk of restructured securities held by the NBU bears a coupon rate that was determined annually by the Ministry of Finance and linked to expected inflation. Effective 2005, the coupon rate formula will be linked to actual past inflation. Eliminating the uncertainty and discretion in the papers' yield should make them more marketable. The second type of securities was issued in September 2000 in the process of restructuring accrued interest on Ukrainian government debt securities. The notes mature in 2009 and 2010 and bear no interest. The NBU also holds euro-denominated government securities which mature in 2007. It received these bonds as compensation for liquidity support provided to a Ukrainian bank in which it intervened.

Ukraine: Restructured Government Securities 1/

	Government Securities Issued in Oct. 2000	State Treasury Notes Issued in Sept. 2000	Converted Government Securities Issued in Feb. 2000
Origin	Acquired as a result of restructuring government securities issued in 1998–2000	Received from the Ministry of Finance in the process of restructuring accrued interest on government securities maturing in 2000–2004	Originally US\$-denominated government bonds that were issued to the Russian “Gazprom” in 1995. The NBU received those securities as compensation for liquidity support provided to a Ukrainian bank in which it intervened.
Currency denomination	Hryvnia	Hryvnia	Euro
Face value			
2003	Hrv 7,438 million	Hrv 395 million	Hrv 113 million
2002	Hrv 8,500 million	Hrv 395 million	Hrv 121 million
2001	Hrv 8,809 million	Hrv 395 million	Hrv 114 million
Maturity	2010 (monthly repayment of Hrv 90 million)	2009: Hrv 196 million 2010: Hrv 199 million	2007
Coupon rate	Inflation-indexed 2/ 2004: 8.7 percent 2003: 0.0 percent 2002: 5.2 percent 2001: 17.0 percent	Zero	10 percent

1/ At end-June 2004, the entire stock was held by the NBU.

2/ The coupon rate is calculated as:  $i = 1.03 * \left[ \left( \frac{CPI_t^e - CPI_{t-1}}{CPI_{t-1}^e} - 100 \right) \right]$ ;

with  $CPI_t^e, CPI_{t-1}^e$  = Official projections of the consumer price index.

Effective 2005, the formula for the coupon rate will be as follows:

$i = (CPI - 100) * 1.03$  if  $CPI > 100$ ;  $i = 1.03$  percent if  $CPI \leq 100$ .

Sources: National Bank of Ukraine and Ministry of Finance.

**125. In an attempt to tap household savings, the government has offered savings bonds.** An initial offer of Hrv 50 million bearer certificates in small denominations (Hrv 50)



went on sale in May 2002. By May 2004, the sales of two series (Hrv 150 million) were completed with the authorities hoping to sell a total of Hrv 400 million. The savings bonds yield a nominal interest of 16 percent, with the effective yield currently around 12 percent.

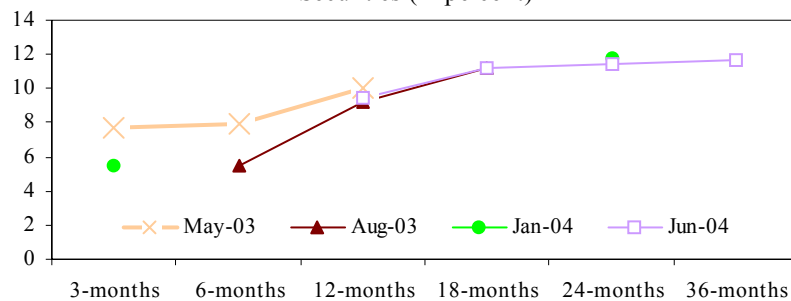
### Primary market

126. **Frequent auctions, which often failed to find buyers, have left the primary yield curve with significant gaps** (Figure 2). Until June 2004, the Ministry of Finance held weekly auctions with maturities being decided week by week and ranging from 3 to 24 months. Emphasis has shifted towards 18 and 24 months maturities since the beginning of 2004 (Table 3) and the Ministry of Finance announced that in 2005 it would only issue debt with a maturity of at least three years. Largely due to low yields offered at the short end, the Ministry of Finance could not find buyers for its papers in more than half of all auctions since 2003 (Table 4).

The number of outstanding papers is large while each volume is low since the Ministry of Finance does not reopen any issuance of government securities. In 2003, the government issued 66 different papers. The largest single issuance was only Hrv 78 million, but most were below Hrv

20 million. This fragmentation has not improved in 2004, even though two larger issues of Hrv 200 (232) million were placed. In an attempt to reduce such fragmentation, the Ministry of Finance has moved to bi-weekly auctions in July 2004 and announced to issue only paper with a maturity of at least 9 months for the remainder of the year.

Figure 2. Ukraine: Primary Market Yield Curve for Domestic Government Securities (In percent)



Source: National Bank of Ukraine.

Table 3. Ukraine: Primary Issuance of Domestic Government Securities, 2003-04

	Total	3- months	4- months	5- months	6- months	7- months	9- months	11- months	12- months	18- months	24- months	36- months	49- months
(Amount; in millions of hryvnias)													
2003 Q1	242.7	147.2	17.5	9.6	51.9	1.9	0.0	0.0	4.6	10.0	0.0	0.0	0.0
Q2	383.9	52.0	0.0	0.0	50.5	0.0	0.0	58.1	27.4	118.1	0.0	0.0	77.8
Q3	188.9	0.0	0.0	0.0	0.2	0.0	3.6	0.0	72.7	112.4	0.0	0.0	0.0
Q4	345.8	25.7	0.0	0.0	1.4	0.0	20.3	0.0	11.9	286.5	0.0	0.0	0.0
Total	1,161.2	224.8	17.5	9.6	103.9	1.9	23.9	58.1	116.6	527.0	0.0	0.0	77.8
2004 Q1	384.8	24.7	0.0	0.0	0.0	0.0	0.0	0.0	31.0	234.7	94.5	0.0	0.0
Q2	1,083.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	153.8	282.7	46.9	600.1	0.0
(Average yield)													
2003 Q1	7.9	7.6	7.8	7.9	8.1	8.0	..	..	9.5	10.0	..	..	..
Q2	9.9	7.7	..	..	8.0	..	..	9.9	10.0	11.6	..	..	10.0
Q3	10.4	..	..	..	5.5	..	7.0	..	9.3	11.3	..	..	..
Q4	10.3	5.1	..	..	5.5	..	7.0	..	9.0	11.4	..	..	..
2004 Q1	11.1	5.5	..	..	..	..	..	..	9.5	11.6	11.7	..	..
Q2	..	..	..	..	..	..	..	..	9.5	11.2	11.4	11.7	..

Source: National Bank of Ukraine.

Table 4. Ukraine: Number of Primary Market Auctions for Domestic Government Securities, 2003-04

	Total	3- months	4- months	5- months	6- months	7- months	9- months	11- months	12- months	18- months	24- months	36- months	49- months
2003 Number of auctions	163	25	1	1	29	4	18	2	31	44	3	2	2
o/w failed	97	12	0	0	18	3	15	0	20	23	3	2	0
2004-H1 Number of auctions	92	4	0	0	4	0	4	0	24	21	23	12	0
o/w failed	49	3	0	0	4	0	4	0	12	4	14	8	0

Source: National Bank of Ukraine.

## Box 2. Characteristics and Auction Procedures for Domestic Government Securities

**Securities with an original maturity of one year or less are zero coupon bills; other maturities pay a quarterly coupon.** The nominal value is UAH 1,000 each. The NBU acts as an agent and operates the register. Four days before an auction the NBU, on behalf of the Ministry of Finance, sends detailed information, including an indicative offer volume, to the 51 banks with custody of government securities. There is no formal prospectus.

**Bidding takes place in two rounds.** All (binding) bids have to be received by 11:00 a.m. on the day of the auction. Upon receiving the bids, the State Debt Department of the Ministry of Finance announces a new indicative interest rate to the bidders by 1:00 p.m. Bidders are invited to amend their binding bids (by lowering the bid interest rate to below the new indicative level, increasing the volume, or both) before 4:00 p.m. On the basis of the new bid list, the State Debt Department decides the cutoff interest rate and the corresponding volumes. The auction is conducted on a discriminatory price (“American”) basis.

## Secondary Markets

127. **Secondary market activity has come to a standstill in 2003** (Table 5). The most active segment of trading—restructured government securities—halted in 2003 since the annually determined coupon rate was set by the government at zero percent owing to the

deflation in 2002. While trading in other government securities picked up, it could not compensate this sharp drop. A total annual turnover of 35 percent of the outstanding stock or 1.3 percent of GDP in 2003 bears witness of the market's low liquidity. Since investors increasingly prefer to hold securities until maturity, secondary market turnover has fallen even further in 2004. One state-owned bank, whose lending operations are restricted as part of its rehabilitation program, and the deposit insurance scheme are among those with a steady demand in primary auctions but little interest in trading.

Table 5. Ukraine: Secondary Market Turnover of Government Securities, 2001-04

	2001	2002	2003	Q1-2004	2001	2002	2003	Q1-2004
	(In millions of hryvnias)				(In percent of total outstanding stock)			
Government securities	619	1,584	3,211	123	5.8	14.6	32.4	1.2
Restructured govt. securities	11,323	5,247	239	151	106.8	48.5	2.4	1.4
Total	11,942	6,831	3,450	274	112.6	63.1	34.8	2.6

Sources: First Securities Trading System (PFTS); and State Commission on Securities and Stock Market (SCSSM).

128. **After the delay is securitizing VAT refund arrears, interest for these papers has recently emerged, in particular from nonresidents.** However, only a fraction of trading is on the regulated market. Reportedly, the discount has narrowed from originally 25-30 percent to about 10-15 percent. Accordingly, the NBU announced that it accepts VAT refund bonds as collateral for monetary policy operations at a haircut of 10 percent rather than the originally requested 25 percent. In contrast, banks can borrow against “regular” government securities without discount.

### Issues for development

129. **The underdevelopment of the domestic government securities market impacts the financial sector in a number of ways.**

- Commercial banks' choices to diversify their portfolios is limited, in particular in light of capital controls and only a small, though rapidly growing, corporate bond market. The lack of other investment opportunities has partly contributed to the strong credit growth and the related risks (see Chapter II for more details).
- The lack of benchmark issues and a yield curve makes it difficult for banks and other financial market participants to price financial instruments.
- The underdevelopment of government securities markets also inhibits the transmission of monetary policy through interest rates. It is not only difficult for the NBU to affect interest rates across many maturities, but there is also no medium- to long-term interest rate for government securities that could serve as a meaningful indicator of inflation expectations.
- Interbank money markets remain fragmented partly because the lack of collateral prevents banks from lending against collateral or using repurchase agreements. For

example, despite the excess liquidity in the banking system, on average 50 banks (of the 157) had to borrow overnight from the NBU each month in the second half of 2003.

- Due to the low stock of government securities the NBU has also introduced unsecured overnight lending to banks. Even though banks need to fulfill certain criteria of creditworthiness, this policy stands in contrast to good international practices.
- With no “regular” government bills left in its portfolio and restructured securities not readily marketable, the NBU has resorted to its own papers (certificates of deposits) to sterilize higher than expected accumulation of foreign exchange reserves. While outstanding amounts are still low at Hrv 212 million at end-July, they could create competition to government securities and further segment the market.

130. **The FSSA and an IMF technical assistance mission made a number of recommendations to address these development issues.** The recommendations include: (a) developing public debt management guidelines that are conducive to market development; (b) narrowing the number of government securities and increasing their volume by reducing the numbers of auctions and allowing reopening of issues; (c) allowing all types of investors, including non-residents to participate directly in auctions; (d) simplifying the auction process by announcing a firm quantity of papers on offer and allowing only one round of bids; (e) conducting monetary policy through open market operations based on the use of government securities; (f) increasing the availability of securities by securitizing the large NBU loan to the government; (g) increasing transparency by issuing a prospectus and an auction calendar; and (h) introducing a primary dealer system when the necessary conditions are in place.

131. **Recognizing the importance of a domestic government securities market, the government has committed to its development under the Fund supported program but progress has so far been slow.** Measures taken by the authorities include the reduction in the frequency of auctions from weekly to bi-weekly and the shift to medium and longer-term debt. Moreover, the government has adopted the revision of the coupon rate formula for restructured bonds which eliminates elements of uncertainty and discretion to make these papers more marketable. It is also considering the introduction of a primary dealer system. For the latter, however, a number of supporting conditions need to be put in place first.

## **B. Corporate Bonds Market**

132. **Despite a surge in corporate bonds issuance, which has made them the most popular instrument on licensed exchanges and trading systems, markets continue to be small.** Registration of new corporate bonds through the State Commission on Securities and Stock Market (SCSSM) jumped to Hrv 4.2 billion in 2003 compared to only Hrv 0.8 billion

in 2002.<sup>52</sup> The overall outstanding stock is estimated at around Hrv 6 billion or 2.3 percent of GDP, higher than the stock of government securities held outside the NBU.

**133. Favorable conditions have made cooperate bonds attractive for issuers.**

Corporate bond yields of about 16 percent for short-term corporate papers and 10 percent for bonds with longer maturities compare favorable with bank lending rates of 17½ percent. Other factors quoted for the upsurge are the greater flexibility for issuers, including in setting debt service conditions and avoiding the need for collateral. Moreover, corporate bonds are attractive for large borrowers given that the large exposure limits to a single borrower and the relatively small size, even of the largest Ukrainian banks, would require to borrow from a bank consortium. About 40 percent of funds raised through the issuance of corporate bonds issued in 2003 was by state-owned enterprises.

**134. Banks are the main investors in corporate bonds.** The securities carry attractive yields (5 to 10 percentage points spreads over government securities for maturities of one year and less) and are welcome instruments to diversify banks' portfolios. All corporate debt securities have so far been serviced timely. Corporate bonds can also be used as collateral for central bank loans, although at a much higher haircut than government securities. Even though secondary trading activity is low, it surpasses that of government securities. Data for the First Securities Trading System (PFTS) show an annual turnover of about 2 percent of GDP in 2003. Since corporate bonds are also traded on other regulated markets, the numbers compare favorably with the total turnover in government securities on regulated markets of 1.3 percent of GDP.

**135. The gained popularity of domestic corporate bonds in Ukraine follows a trend across emerging market countries.** The share of corporate funding through domestic corporate bonds increased to 27 percent in 2000-2002 compared to 4 percent in 1997-99 (Mathieson and others, 2004). In general, eastern European markets lag behind Asia and Latin America, where the average stock amounted to about 20 percent of GDP at end-2002. Markets are much smaller in transition economies. The largest corporate bond markets, in terms of GDP, can be found in Kazakhstan with about 10 percent to GDP ratio, 9 percent in the Czech Republic, and 2.5 percent in Hungary. Russia was the fastest growing market in 2002 even though still small in size (US\$2 billion outstanding bonds at end-2002; 0.6 percent of GDP) (Ilyina, 2003).

**136. Conditions are favorable but need to be strengthened further to continue the development of Ukraine's domestic corporate bond market.** The lack of a developed government securities market in Ukraine does not seem to have impeded the development of a corporate bond market despite the lack of a yield curve that would facilitate pricing. On the contrary, unlike in other transition economies the financing needs of the government have

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<sup>52</sup> Registration in 2002 also included Hrv 3.5 billion by Gas Ukraine, which however were never marketed.

not crowded out banks' appetite for fixed income instruments. A wider investor base for these securities can be expected to emerge in the long run as a result of the recent pension reform and the rapid growth of the insurance sector.

### **Box 3. Market Structure and Supervisory Framework**

#### **Stock exchanges and trading systems**

The main organized forum for trading financial instruments is the First Securities Trading System (PFTS), and for trading foreign exchange the Ukrainian Interbank Currency Exchange (UICE). In addition, there are six other licensed stock exchanges and one trading system. Their market share in terms of capitalization and trading activity, however, is marginal (5 percent and 3 percent, respectively in 2003) and they are mainly used for auctions. The infrastructure is further complicated by four depositories and large numbers of registrars and licensed brokers.

#### **Supervisory framework**

The State Commission on Securities and Stock Market (SCSSM) supervises the stock exchanges and systems, which are self-regulatory organizations. Its responsibilities also include the supervision and licensing of market participants (brokers, investment funds), granting permission for initial public offerings of securities, licensing stock exchanges and depositories, approving their rules and regulations, and maintaining publicly available information related to securities market.

#### **Development issues**

Recommendations to strengthen the market structure and supervisory framework were made in the FSSA (IMF Country Report 03/340) and include consolidating markets, depositories, registrars, and brokers, increasing disclosure requirements (for example by requiring prompt disclosure acquisition of 10 percent of any listed company, and of legal buying and selling), and implementing fit and proper tests and risk-based liquid asset requirements for licensed market intermediaries. A Memorandum of Understanding between the SCSSM and other financial market supervisors (NBU and the Non-Bank Financial Institutions Regulator) was signed in November 2003 to strengthen cooperation in supervision.

137. **A more developed corporate bond market has several benefits.** In addition to developing a yield curve and strengthening the monetary transmission mechanism, even in the absence of a developed government securities market, a local bond market would soften the impact of lost access to international capital market or bank lending. It is thus a risk diversification strategy for the borrowers as well as the lenders. Rating of corporates and strict reporting requirements for bond issuers would also be important steps in improving the transparency of corporates and financial markets. Currently, however, corporate bonds merely need to be registered with the SSCSM and ratings have only been assigned to a small number of banks. Reporting requirements, comparable with Western standards, only apply to "Tier 1" issuers. For corporate bonds only the city of Kyiv bonds fall into that category. Reports of other issuers' financial results have often a long lag and are less detailed.

Table 6. Ukraine: Secondary Market Turnover on the PFTS, 2001-04  
(In millions of hryvnias)

	2001	2002	2003	Q1-2004
Total	6,089	6,125	3,123	1,511
Corporate bonds	112	750	2,031	901
Municipal bonds	0	0	13	85
Government bonds	4,855	4,737	521	6
Equities	998	628	558	504
Derivatives	2	0	0	15
Other	122	10	0	0

Source: First Securities Trading System (PFTS).

#### Box 4. Other Instruments

**Municipal bonds:** The city of Kyiv was the first municipality to regain access to the domestic securities market in 2003. It issued Hrv 100 million of a 5-year bond with a 14 percent coupon rate for the first year which then falls for the remainder of the maturity. Two other municipalities issued Hrv 25 million in July 2004 and Hrv 20 million in August 2004, respectively. Others are expected to follow.

**Derivatives:** Derivative markets are still in its infancy. The few instruments, which are traded on the Ukraine Interbank Currency Exchange and the PFTS, include foreign exchange futures, future contracts for sugar, and options for the installation of telephone lines. Trading on the PFTS reached Hrv 15 million in the first quarter of 2004. In particular, the lack of foreign exchange swaps and futures is an impediment for effective risk management should the exchange rate become more flexible.

**Promissory notes:** Like in other CIS countries promissory notes have played an important role as a payment instrument in the 1990s often with the objective of tax evasion. Despite a ban of government promissory notes and the ban to trade them on regulated markets in 2002 to curb fraudulent use, a large stock is estimated to be still outstanding. Promissory notes have also increasingly been used to offset tax payments among tax payers which has complicated tax collection. To resolve these difficulties and make the trade in promissory notes more transparent, the ban to trade them on regulated markets was repealed in August 2004.

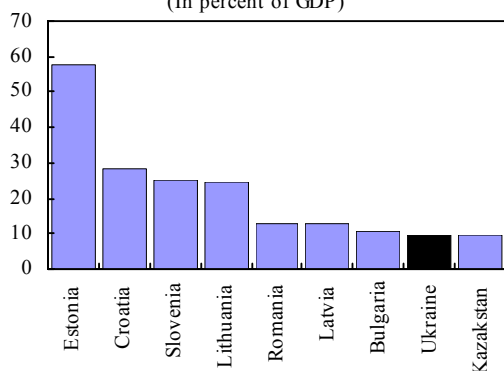
### C. Equity Market

138. **Ukraine's regulated equity markets are small and illiquid.**<sup>53</sup> Market capitalization of about 10 percent of GDP is below that of many other transition economies (Figure 3). Only 297 of an estimated 12,000 open joint stock companies were listed at end-2003. No initial public offerings were made in 2003, but 28 corporates were delisted (Figure 4). After trading activity had declined in 2003, it picked up significantly in the first quarter of 2004 to

<sup>53</sup> All data quoted below refer to equities listed on the PFTS. Its share in equity trading amounted to about 97 percent in 2003 and its stock market capitalization to 95 percent.

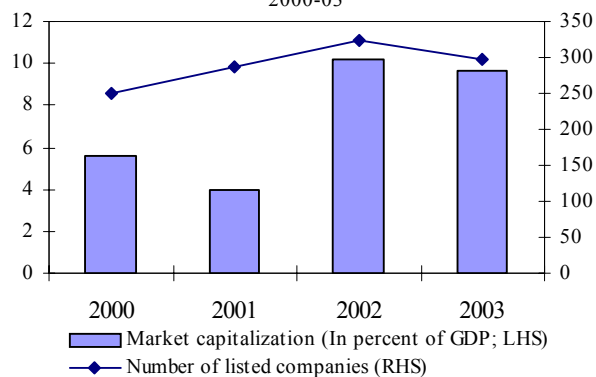
about US\$180 million per month (Table 6).<sup>54</sup> Significant trading of stocks takes place outside the regulated markets (an estimated 90-95 percent according to the SCSSM) (Oxford Analytica, 2002). The underdevelopment of the equity market reflects the slow progress in privatization, weaknesses in corporate governance, delays in passing the Joint Stock Company Law, and the particular ownership structure of corporates in which owners are unwilling to give up control and subject themselves to public accountability. Financial disclosure requirements for listed companies vary according to the "tier" to which they are assigned. The strictest requirements apply to the nine largest corporates in "tier 1." For other listed companies, the time lag of financial disclosure is reported to be far too long and the quality of data weakened by the accounting practices.

Figure 3: Stock Market Capitalization, 2003  
(In percent of GDP)



Source: PFTS Annual Report 2003.

Figure 4: Ukraine: Listing of Equities on the PFTS,  
2000-03



Source: First Ukrainian Trading System (PFTS).

139. **Market concentration is high.** The biggest enterprise—Ukrtelecom, which is still majority state-owned—accounts for almost one third of the market capitalization. The biggest five enterprises make up nearly 60 percent of capitalization. The majority of the 297 listed companies are not actively traded. Of the large number of banks and insurance companies in Ukraine, only 13 are listed on the stock exchange PFTS with a mere market capitalization of US\$40 million. Capital for the rapid expansion of that sector is not raised through the regulated equity markets.

<sup>54</sup> This compares to a monthly turnover of about US\$500 million in the Czech Republic, Hungary, and Poland in 2002 (Mathieson and others, 2004).



### Box 5. Privatization Through the Stock Exchange

**Privatization has been marked by wavering commitment of the authorities since the 1990s** (Elborgh-Woytek and Lewis (2002). The divestiture of 1,240 medium and large-scale enterprises in 1992-94 through lease buyouts by managers and employees was followed by a mass privatization program during 1995-98 under which 9,240 medium and large scale enterprises were privatized. The privatization of about 68,000 small scale enterprises was largely completed in 2002, using mainly cash auctions or tenders. Large scale enterprises were privatized on a case-by-case basis from 1998 and included some stock market sales.

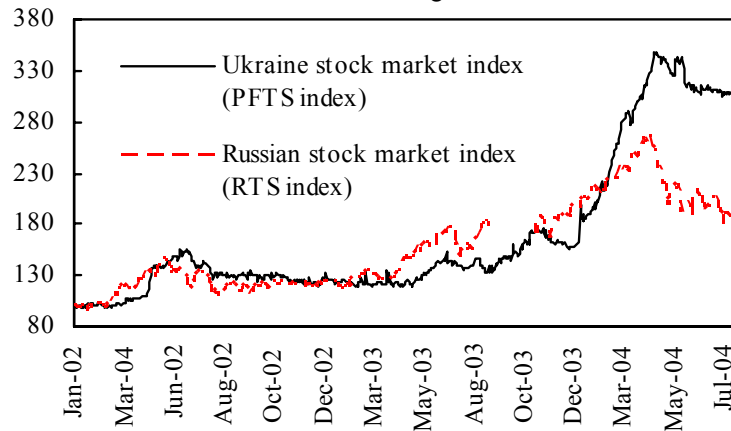
**Stock market sales have gained importance in particular since 2000 but accounted for only 8½ percent of total privatization revenues until end-June 2004.** Two of the largest three companies on the First Securities Trading System (PFTS), the biggest stock exchange in Ukraine, are Ukrtelekom (a telecommunication enterprise) and Ukrnafta (an oil and gas company) which accounted for 40 percent of market capitalization at end-2003. Shares in Ukrnafta were already sold in 1997 and Ukrtelekom went public in 2002 but both companies are still majority state-owned.

#### 140. Stock market prices have surged since end-2003.

The PFTS index rallied to a new all time high in May, and has only recently been dampened by the downturn of the Russian market. Nevertheless, the PFTS index at end-June was still 67 percent above its value at the beginning of the year (Figure 5). Positive impulses have come from Russia—indirectly through strong Russian capital markets and directly through increased interest by Russian investors. Western investment funds have

also started to place orders. Nevertheless, the development of the PFTS index needs to be interpreted with caution. Due to the size and lack of liquidity of the market, few transactions can have significant impact on stock prices. Moreover, the PFTS index is calculated based on only 10 enterprises with two accounting for 60 percent of the index.

Figure 5: Stock Market Indices in Ukraine and Russia, Jan. 2002-Aug. 2004



Source: PFTS and RTS.

1/ Jan. 8, 2002=100.

**141. Financial intermediation through diverse sources, including through stock markets, can contribute to economic growth.** While there is extensive debate about bank-based versus market-based systems, empirical evidence suggests that the main contribution to growth comes from the degree of financial development in combination with a sound legal and regulatory framework, including contract enforcement and investor protection, rather than either of the polar systems (Levine 2002, Beck and Levine 2004). For Ukraine, a more developed equity market could therefore play a useful role in financial intermediation. However, impetus for the market development needs to come from the adoption of the Joint

Stock Company Law, improvements in corporate governance and transparency, and public offerings of privatized enterprises.

Table 7. Ukraine: Equity Market Capitalization and Turnover by Sectors, 2000-03

	2000	2001	2002	2003
Market capitalization (In millions of hryvnias)	9,479	8,062	24,119	25,615
Energy	...	...	3,742	4,591
Communication	...	...	5,643	8,487
Commerce	...	...	3,455	126
Metal industry	...	...	3,493	6,447
Chemical	...	...	1,377	968
Financial	...	...	65	197
Construction	...	...	2,028	501
Other	...	...	4,316	4,298
Secondary market turnover (In millions of hryvnias)	1,310	999	628	559
Energy	573	443	94	99
Communication	0	0	5	38
Commerce	0	1	36	28
Metal industry	159	133	33	31
Chemical	147	50	65	73
Financial	33	39	1	4
Construction	0	4	41	54
Other	398	329	353	232
Number of listed companies	249	286	325	297
Energy	31	31	31	30
Communication	0	1	2	2
Commerce	0	3	15	7
Metal industry	41	47	38	19
Chemical	21	15	19	10
Financial	15	12	24	13
Construction	26	7	20	19
Other	115	170	176	197

Source: First Trading Securities System (PFTS).

1/ On the First Trading Securities System (PFTS).

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## VI. ASSESSING UKRAINE'S VULNERABILITIES FROM A BALANCE SHEET PERSPECTIVE<sup>55</sup>

### A. Introduction

142. **The high degree of dollarization of the Ukrainian economy calls for a systematic assessment of its vulnerabilities to currency and maturity mismatches.** This chapter undertakes a first step at such an assessment. It utilizes newly available data to give a broad overview of Ukraine's asset and liability position vis-à-vis the rest of the world. Going beyond this aggregate picture, this chapter discusses some key vulnerabilities relating to the international investment position of the economy's main sectors. Such a sectoral approach is essential in identifying the key areas where a potential crisis associated with sharp exchange rate movements may be triggered, as well as the main channels through which the impact of such movements could be transmitted. As such, it can provide useful input in the design of appropriate policy responses.

143. **Until very recently, data availability has limited the assessment of external vulnerabilities to the position of Ukraine's public sector.** Overall, the public sector's balance sheet can be regarded as strong. The level of its external liabilities is low by international standards. Moreover, the level of foreign exchange reserves has been providing an increasingly adequate hedge to exchange rate movements; and the medium- to long-term nature of public external debt implies limited rollover risk.

144. **Exclusive focus on the public sector's external position clearly provides a very partial picture of Ukraine's vulnerabilities; the very recent compilation by the Ukrainian authorities of international investment position data for the economy as a whole goes a long way towards remedying this shortcoming.** Taking the private sector's external position into account leads to a less benign assessment of the Ukrainian economy's vulnerabilities, in terms of the level of its overall external liabilities, its net currency exposure, and the maturity structure of its external debt. The vulnerability of the external position of Ukraine's private sector is compounded by the extensive domestic liabilities denominated in foreign currency, which could add to the pressure on the balance of payments in the event of adverse exchange rate movements.

145. **The rest of the chapter is organized as follows.** Section B presents a brief description of the basic analytical framework. Utilizing this framework, Section C discusses the external position of the economy's main sectors, focusing in particular on currency and maturity mismatches. Section D expands the assessment to incorporate the vulnerabilities stemming from domestic liability dollarization. Section E brings together the main conclusions and policy implications of the analysis; importantly, it also points to further data refinements that would be needed for a better understanding of the economy's dollarization-induced vulnerabilities.

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<sup>55</sup> Prepared by Ioannis Halikias.

## B. Analytical Framework and Methodology<sup>56</sup>

146. **To explore and assess balance sheet risks, the economy is decomposed into four sectors.** The sectors considered are the monetary authorities, the general government, the financial sector, and the nonfinancial private sector (NFPS).<sup>57</sup> For part of the analysis, the balance sheets of the monetary authorities and the general government are consolidated into the “public sector”, and those of the financial sector and the NFPS into the “private sector” (or “non-government sector”). The sectoral asset and liability positions, along with each sector’s assets and liabilities vis-à-vis the rest of the world (external sector), are presented in matrix form in Table 1. This matrix summarizes the balance sheet linkages between the economy’s sectors, and the exposure of each domestic sector to the rest of the world. The sectoral assets and liabilities vis-à-vis the external sector can be aggregated to yield the country’s overall exposure to the rest of the world. Each row of the matrix presents the *liability structure* (by currency, maturity, and creditor) of a sector; each column presents the corresponding *asset structure* of a sector—its holdings of another sector’s liabilities. Appropriate netting out of financial assets from financial liabilities provides indicators of exchange rate and rollover risk.

147. **Currency and maturity mismatches are the focus of analysis in this chapter;** such mismatches have been at the heart of most of the crises in emerging markets since the mid-1990s, and have motivated much of the so-called “third generation” currency crisis literature. A currency mismatch, i.e. a situation where foreign currency-denominated liabilities exceed foreign currency denominated assets, exposes a sector or an economy to exchange rate risk: adverse exchange rate movements can entail substantial balance sheet losses, triggering a destabilizing run on the currency. Similarly, a maturity mismatch, i.e. a situation where short-term liabilities are not matched by a sufficient amount of liquid assets, generates rollover risk, rendering an economy vulnerable to sudden shifts in investor sentiment. In particular, recent experience suggests that large currency and/or maturity mismatches in the private sector can generate economy-wide crises, even in situations where solvency is not an issue for the sectors concerned and the financial position of the public sector (which had been the focus of earlier currency crisis theories) appears strong.

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<sup>56</sup> This section follows the approach described in Allen, M., C. Rosenberg, C. Keller, B. Setser, and N. Roubini, “A Balance Sheet Approach to Financial Crisis,” IMF Working Paper, WP/02/210, 2002.

<sup>57</sup> Reflecting the authorities’ presentation, the NFPS includes private enterprises, households, *as well as public enterprises*. Similarly, the financial sector includes both privately and publicly owned financial institutions.

Table 1. Ukraine: Intersectoral Liability and Asset Position, End-December 2003 1/  
(In millions of U.S. dollars)

Holder of the liability (Creditor)	Monetary authorities	General government	Financial sector	Non-financial sector	External sector 4/	Total liabilities
<b>Issuer of the liability (Debtor)</b>						
<b>Monetary authorities</b>						
<b>Total liabilities</b>		933	787	22	1,919	3,661
<b>short-term 5/</b>		933	787	22	0	1,742
in foreign currency		0	40	0	0	40
in domestic currency		933	747	22	0	1,702
<b>medium &amp; long-term</b>		0	0	0	1,919	1,919
in foreign currency		0	0	0	1,919	1,919
in domestic currency		0	0	0	0	0
<b>General government 2/</b>						
<b>Total liabilities</b>	3,479		491	n/a	8,929	n/a
<b>short-term 5/</b>	0		0		0	
in foreign currency	0		0		0	
in domestic currency	0		0		0	
<b>medium &amp; long-term</b>	3,479		491		8,929	
in foreign currency	115		0		8,929	
in domestic currency	3,364		491		0	
<b>Financial sector</b>						
<b>Total liabilities</b>	446	209		11,592	1,746	13,994
<b>deposits &amp; other short-term</b>	218	209		11,577	1,257	13,261
in foreign currency	0	0		3,729	1,257	4,986
in domestic currency	218	209		7,847	0	8,275
<b>medium &amp; long-term</b>	228	0		16	489	733
in foreign currency	0	0		0	489	489
in domestic currency	228	0		16	0	244
<b>Equity (capital)</b>					0	
<b>Nonfinancial sector 3/</b>						
<b>Total liabilities</b>	36	n/a	13,361		18,720	n/a
<b>short-term 5/</b>	36		6,993		7,705	
in foreign currency	29		2,353		7,705	
in domestic currency	7		4,640		0	
<b>medium &amp; long-term</b>	0		6,368		11,015	
in foreign currency	0		3,588		11,015	
in domestic currency	0		2,781		0	
<b>Equity (capital)</b>					7,088	
<b>External sector 4/</b>						
<b>Total liabilities</b>	7,198	4	1,358	2,475		11,035
currency & short-term 5/	7,198	0	1,352	2,292		10,842
medium & long-term	0	4	6	183		193
<b>Equity (incl. FDI)</b>	0	0	0	164		164
<b>Total assets</b>						
(holdings of liabilities)	11,159	n/a	15,998	n/a	31,314	
of which						
in foreign currency	7,341		7,333		31,314	
short-term	7,452		9,132		8,962	
short-term and foreign	7,227		3,745		8,962	

Sources: Ukrainian authorities; and Fund staff estimates.

1/ Data evaluated at Hryvnia 5.3315 per US\$.

2/ Nonfinancial public sector.

3/ Private and public enterprises, and households.

4/ Liabilities and assets with non-residents (International Investment Position).

5/ According to original maturity.

148. **For the purposes of this chapter, a number of caveats and data limitations need to be emphasized at the outset.** Some of these considerations apply to the approach generally, while others are more specific to the case of Ukraine.

- The data in Table 1 do not include non-financial assets: these would be relevant for assessing solvency issues, which is not a central concern of this chapter.
- Assets are recorded at face value; it can be argued that a mark-to-market approach that takes into account asset price changes may be warranted—unfortunately, this information is not available for Ukraine.
- The underlying vulnerability of particular sectors could be underestimated due to aggregation: specifically, the assets of one private entity may not be available to cover the liabilities of another. This issue is briefly revisited in the discussion of the needed further refinement of the available data.
- It is conceivable that in the case of Ukraine official data could understate the true foreign assets of the private sector. The amounts of assets that were repatriated this year in connection with the privatization program could suggest that such assets may be under-recorded.

### C. An Assessment of Ukraine's Sectoral External Positions

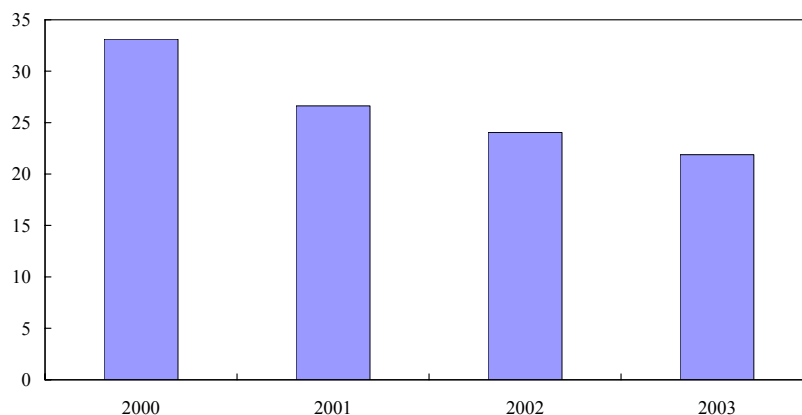
149. This section explores the balance sheet positions of Ukraine's main economic sectors vis-à-vis the rest of the world. For the purposes of exposition, the external positions of the public and private sectors are discussed separately.

#### The public sector's external position

150. **The public sector's external position has strengthened considerably since the 1998-99 financial crisis.**

Following the 1999 sovereign debt restructuring, consistent primary budget surpluses and strong output growth have contributed to a steady decline in the public external debt as a share of GDP between 2000 and 2003, from 33 to 22 percent (Figure 1). This level compares favorably with that in other transition economies, as well as the broader group of emerging market economies, where

Figure 1. Public Sector External Debt  
(In percent of GDP)



Sources: Ministry of Finance; and Fund staff estimates.



public external debt stands above 25 percent of GDP on average. And given that virtually all of Ukraine's public debt held by residents is denominated in domestic currency, Ukraine compares even more favorably in terms of its foreign currency public external debt.

151. **The medium term prospects for the public sector's external position also appear quite favorable.** On the basis of the staff's baseline scenario, Ukraine's public external debt as a share of GDP is projected to continue to decline steadily in the coming years. Moreover, the vulnerability of the public sector's external position to a variety of possible shocks appears relatively low. Standard stress tests involving shocks to the exchange rate, interest rates, and GDP growth (described in Appendix V of the staff report) do not result in significant destabilizing trends for Ukraine's public external debt ratio.

152. **Beyond the low level of public external debt, the public sector's external position is characterized by increasingly adequate hedging and negligible rollover risk.**

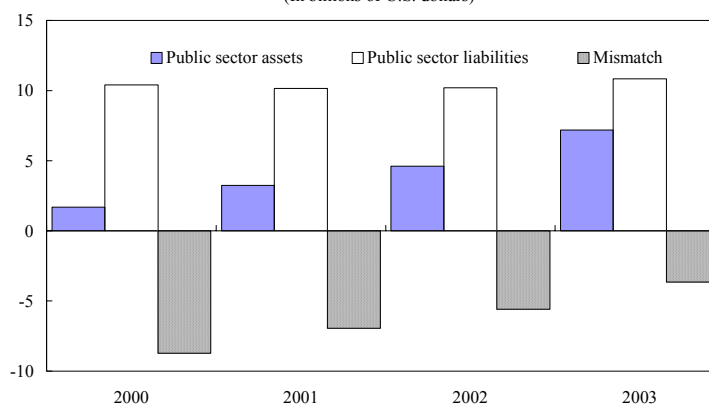
The combination of a steadily declining public sector external debt as a share of GDP in the aftermath of the financial crisis of the late 1990s, together with rapid accumulation of foreign exchange reserves by the monetary authorities, have

resulted in a steady and substantial decline in the public sector's currency mismatch vis-à-vis the rest of the world. Between 2000 and 2003, the public sector's open position vis-à-vis the rest of the world has narrowed from US\$8.7 billion to US\$3.6 billion, equivalent to just over 7 percent of GDP (Figure 2); the sector's exchange rate risk has correspondingly diminished substantially. The very large reserve accumulation so far this year implies that the public sector's currency mismatch has continued to narrow. At the same time, with the public sector consistently issuing debt at medium- to long-term maturities, the stock of short-term external debt has remained at or very close to zero: this has kept rollover risk minimal.

### The private sector's external position

153. **The release early this year of Ukraine's international investment position (IIP) data by the authorities offers the opportunity to pursue a more comprehensive assessment of the economy's vulnerabilities linked to currency and maturity mismatches.**<sup>58</sup> As mentioned above, in the authorities' presentation, the non-government

Figure 2. Public Sector Currency Mismatch  
(In billions of U.S. dollars)



Sources: Ministry of Finance; and Fund staff estimates.

<sup>58</sup> The data are available at an annual frequency, and cover the period 2000-03.

sector is decomposed into the financial sector, comprising both privately and publicly owned financial institutions, and the nonfinancial private sector (NFPS), comprising private enterprises, households, and public enterprises.

154. **Taking into account the external position of the non-government sector paints a much less benign picture of the economy's overall vulnerabilities** (Table 2). As can be seen from Table 1, by 2003 the gross liabilities of the private sector vis-à-vis the rest of the world amounted to some \$19.5 billion, almost twice as large as the corresponding liabilities of the public sector.

Removing non-debt-creating liabilities (essentially foreign direct investment) yields the private sector's gross external debt: in 2003, it stood at \$13 billion, over 26 percent of GDP, and significantly above public external debt. It can

Table 2. Ukraine: External Debt, 2000-03  
(In millions of U.S. dollars)

	2000	2001	2002	2003
Gross external debt	19,940	21,165	22,079	23,812
(in percent of GDP)	63.8	58.7	52.1	48.1
o/w short-term	7,375	8,408	8,925	8,962
Monetary authorities	2,101	1,991	1,947	1,919
General government	8,308	8,182	8,253	8,929
Banks	364	539	859	1,746
Nonfinancial private sector	9,167	10,453	11,020	11,218

Sources: Ministry of Finance; National Bank of Ukraine; and staff estimates.

also be noted that private external debt has been much slower to come down, having declined by only 4 percentage points of GDP between 2000 and 2003, despite strong real output growth during this period. In all, incorporating the non-government sector in the analysis brings Ukraine's total external debt in 2003 to just under 50 percent of GDP. While this level of external debt is not excessive by international standards, it clearly provides less room for comfort than focusing exclusively on the public sector's external position: experience suggests that it is not uncommon for emerging markets to experience "sudden stops" at such levels of external indebtedness.

155. **The private sector's external position is characterized by large currency mismatches, exposing the sector, and the economy as a whole, to substantial exchange rate risk.** An inspection of Table 1 reveals that the external position of Ukraine's non-government sector is to a large extent unhedged: by 2003, private sector foreign assets vis-à-vis the rest of the world fell short of corresponding liabilities by some US\$16 billion (Table 3), about one-third of GDP (or just under 20 percent of GDP if equity is excluded). A currency mismatch of this magnitude renders the economy vulnerable to sudden adverse

Table 3. Ukraine: Private Sector External Assets and Liabilities, 2003  
(End-of-period; millions of U.S. dollars)

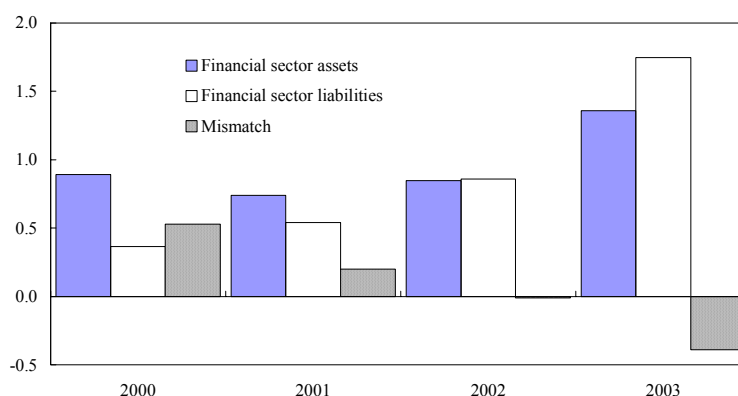
Financial sector	-388
Assets	1,358
Liabilities	1,746
Nonfinancial private sector	-16,245
Assets	2,475
Liabilities	18,720
o/w equity	7,502

Source: National Bank of Ukraine; and Fund staff estimates.

exchange rate movements: a large depreciation of the exchange rate would entail very substantial balance sheet losses for the non-government sector, inevitably resulting in large-scale pressure on the country's foreign exchange reserves. Given the potential severity of these effects, a better picture of the underlying vulnerabilities is provided by looking at the financial sector and the NFPS separately.

- The currency mismatch in the balance sheet of the financial sector remains relatively limited, but its rapid deterioration over the last few years is cause for concern** (Figure 3). As of 2003, the financial sector's net open position vis-à-vis the rest of the world stood at just over 15 percent of tier 2 capital (or some 17 percent of regulatory capital). From a comparative perspective, this ratio also remains well below the thresholds reached by other emerging market economies on the eve of major banking crises.<sup>59</sup> At the same time, the rapid pace of the deterioration in the financial sector's exposure to the rest of the world is cause for concern: in a span of four years, the sector's balance sheet has shifted from a net asset position of over US\$0.5 billion to a net liability position of some US\$0.4 billion. Arresting this deteriorating trend over the coming years is clearly an important priority for bank supervisors.

Figure 3. Financial Sector Currency Mismatch  
(In billions of U.S. dollars)



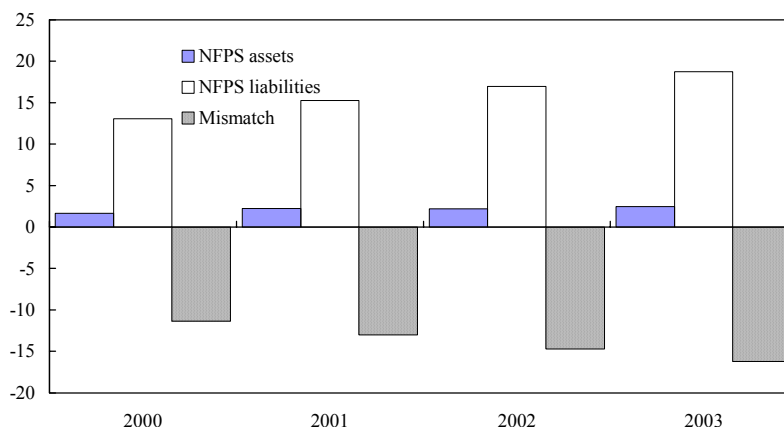
Sources: National Bank of Ukraine; and Fund staff estimates.

- The bulk of the private sector's currency mismatch vis-à-vis the rest of the world can be traced to the NFPS.** In 2003, the currency mismatch in the NFPS balance sheet stood at over US\$16 billion, accounting for virtually the entire mismatch of the non-government sector (Figure 4). Even if one were to exclude foreign direct investment from consideration, the NFPS net liabilities to the rest of the world remain substantial, at a little under 20 percent of Ukraine's GDP. Addressing

<sup>59</sup> To illustrate, on the eve of Turkey's 2000 banking crisis, the financial sector's open position had reached over 100 percent of bank capital; and this ratio becomes much larger if one were to adjust for off-balance sheet forward contracts with connected parties that were of dubious quality.

this sector's currency mismatch is thus a clear prerequisite for reducing the economy-wide vulnerability to exchange rate risk.

Figure 4. NFPS Currency Mismatch  
(In billions of U.S. dollars)



Sources: National Bank of Ukraine; and Fund staff estimates.

156. **In contrast to the public sector, the maturity structure of the private sector's external debt renders it vulnerable to rollover risk.** Whereas all of the public sector's external debt is at medium- to long-term maturities, Table 1 indicates that some 70 percent of the private sector's external debt in 2003 (or 18 percent of GDP) was of a short-term nature. This maturity mismatch renders the private sector particularly vulnerable to rollover risk in the event of a deterioration in investor sentiment. However, such a vulnerability assessment could be overstated, given that some 60 percent of the private sector's short-term external debt consists of trade credit, which sometimes tends to be viewed as less volatile relative to other sources of capital inflows. While the jury on this is still out, it is becoming increasingly clear that the stability of trade financing cannot be taken for granted, and that the behavior of these types of flows depend crucially on the nature of the underlying shock hitting an economy. A case in point is Brazil during its most recent financial crisis: in that case, the reversal of trade credit flows turned out to be at least as pronounced relative to other sources of capital account financing.

#### D. Domestic Liability Dollarization

157. **The structure of assets and liabilities of the non-government sector vis-à-vis the rest of the world provides only a partial picture of the sector's exposure to exchange rate risk; domestic liability dollarization also needs to be taken into account.** In addition to currency mismatches vis-à-vis the rest of the world, it is being increasingly recognized that large currency mismatches between *domestic* sectors can also generate a run on a country's foreign exchange reserves, and thus trigger, or amplify, a currency crisis. Such "domestic liability dollarization" was at the heart of the Asian financial crisis. This type of

vulnerability becomes particularly pronounced in cases where the capital account has been sufficiently liberalized or capital controls can be easily circumvented.

**158. Large currency mismatches between domestic sectors are prevalent in the case of Ukraine, compounding the vulnerabilities associated with similar mismatches vis-à-vis the rest of the world.** The relevant cross-sector balance sheet linkages are summarized in Table 1. The table reveals that the most pronounced currency mismatch between domestic sectors relates to the NFPS exposure to the Ukrainian financial system. This mismatch is a reflection of the large share of foreign currency credit in total credit extended by Ukrainian financial institutions to domestic borrowers—an issue which has already received considerable attention in policy discussions in Ukraine, and which is explored in more detail in Chapter II of this paper.<sup>60</sup> The net exposure of the NFPS to the financial system, at over 5 percent of GDP, compounds the sector’s corresponding mismatch vis-à-vis the rest of the world, adding to its vulnerability to adverse exchange rate movements.

**159. The counterpart of higher exchange rate risk for the NFPS could be higher credit risk for Ukraine’s financial system.** The foreign currency liabilities of the NFPS to the financial system clearly constitute assets for the latter, allowing it to meet its prudential currency exposure requirements in the presence of a net liability position vis-à-vis the rest of the world. This type of hedge, however, could turn out to be particularly problematic. Rather than insulating the financial system from the impact of adverse exchange rate movements, it could expose it to credit risk to the extent that the borrowers concerned do not have adequate sources of foreign exchange earnings. This type of mechanism played a particularly damaging role in the Asian crisis, where exchange rate depreciation triggered widespread defaults by borrowers on their domestic debt obligations, greatly amplifying the crisis. A quantification of this risk for the case of Ukraine is not feasible in the absence of precise information on the composition of domestic borrowers holding foreign currency debt. However, the fact that a substantial share of foreign currency loans (just under 20 percent) goes to households, which presumably have no sources of foreign exchange income, is sufficient cause for concern.

### **E. Summary Assessment and Policy Implications**

**160. The above discussion suggests that Ukraine’s non-government sector, especially the NFPS, constitutes the main source of vulnerabilities relating to currency and maturity mismatches.** While the external position of the public sector appears strong and well-hedged, the same cannot be said for the non-government sector; and these problems are compounded by extensive domestic liability dollarization. Under these conditions, it is clear that this sector is particularly vulnerable to adverse exchange movements or shifts in investor

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<sup>60</sup> The share of foreign currency credit in total credit is an area of vulnerability. Ukraine’s ratio, at nearly 40 percent, is higher than the average of transition economies (some 30 percent) and other emerging market economies (less than 30 percent).

sentiment. A better refined assessment of these vulnerabilities would depend on more accurate data on the private sector's foreign assets, whose true level may exceed the recorded amount: this is an area that clearly needs to be explored further.

**161. While the non-government sector is the weak link in the economy's vulnerability chain, more disaggregated data would be useful in refining the assessment of likely propagation channels further.** By way of illustration, to the extent that unhedged corporates with large exposures to the rest of the world are simultaneously exposed to the domestic banking system, and given the large share of foreign currency loans to households, the banks could come to bear a major share of the adjustment burden, and in turn constitute a key propagation mechanism (via a credit crunch or other channels) to the rest of the economy. Alternatively, to the extent that public enterprises (financial or nonfinancial) carry an important portion of the exposure to the rest of the world, an exchange rate shock could directly translate into a fiscal problem.

**162. Better data could also inform appropriate policy to address the underlying currency and maturity mismatches.** The Ukrainian authorities are increasingly recognizing the vulnerabilities generated by these mismatches and are contemplating strengthening the regulatory framework to address them. Recently, they have introduced measures to curb foreign borrowing by (financial and nonfinancial) enterprises, including by barring such borrowing above a certain interest rate ceiling. Taking into consideration the net foreign asset position of the enterprises concerned could constitute a better targeting approach. This, however, would presuppose better information about the balance sheet structure of potential borrowers, especially in the nonfinancial sector.

**163. At a more fundamental level, policy needs to address potential distortions that could be encouraging open positions by Ukrainian enterprises.** Among the potential contributing factors discussed in the literature, at least two could be relevant in the case of Ukraine: implicit government guarantees; and a pegged exchange rate.

- Implicit government guarantees could have played a role in encouraging open positions by fostering moral hazard. Given the lack of disaggregated data, however, it is very hard to make a judgment on the quantitative importance of this factor. At the very least, the balance sheet of public enterprises need to be monitored closely, and prudential limits considered should evidence of moral hazard emerge. Moreover, experience suggests that allowing enterprises to fail can have a powerful signaling effect in improving incentives.
- The de facto peg to the dollar pursued over the last few years has probably affected behavior and encouraged excessive risk taking by households and enterprises. Introducing exchange rate flexibility could provide strong incentives to economic agents to improve their balance sheet structures.

**164. Aiming at faster accumulation of foreign exchange reserves to provide an economy-wide hedge may not be the best response to address balance sheet problems,**

**and could prove counterproductive.** While a good case can be made that reserves were suboptimally low in the recent past, rapid reserve accumulation through end-2003 and so far in 2004 have largely addressed this concern: by now, foreign exchange reserves have risen to a comfortable level in terms of import coverage, and to a comparable level in terms of key monetary aggregates relative to transition and emerging market economy norms. In addition, aiming at a faster growth in reserves than what is needed to keep pace with imports, by (formally or informally) adopting a target linked to the extent of balance sheet mismatches, could actually backfire, worsening the problems it aims to address. In the first place, the mechanism by which reserves are accumulated could have a bearing on the issue at hand: to the extent that faster reserve accumulation is brought about by maintaining the exchange rate pegged at an undervalued level, a policy that has been effectively pursued up to now, this would almost certainly continue to foster incentives biased toward maintaining currency mismatches. Moreover, effectively signaling to the market that the public sector stands ready to accommodate private sector position-taking could entail further moral hazard problems that may actually exacerbate balance sheet mismatches.

165. **Balance sheet considerations also have a bearing on the pace and sequencing of capital account liberalization.** While this is clearly a much broader issue, policymakers should take into considerations the need by Ukrainian enterprises to augment their foreign asset position, preferably through the accumulation of short-term, liquid assets, so as to strengthen their balance sheets and reduce their vulnerabilities. On this basis, a prudent strategy of capital account liberalization in the near future could reduce currency and maturity mismatches in sectoral balance sheets and actually improve the risk profile of the economy as a whole.