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REPUBLIC OF POLAND

Selected Issues

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Approved by the European Department

September 13, 2006

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I. INFLATION IN POLAND: HOW MUCH CAN GLOBALIZATION EXPLAIN?[1]

A. Introduction

1. **Poland has experienced a dramatic decline in inflation from the early transition period**. From annual average rates of 150 percent in the early 1990s, inflation dropped rapidly, to reach single digit levels by 2001. In recent years, Polish inflation has sometimes even been below Euro Area levels and is currently one of the lowest in the European Union.

2. **Economists have been wondering about the role of globalization in keeping down inflation**. Sustained low inflation has been a stylized fact of the late 1990s and early 2000s, both in advanced and increasingly in emerging markets. Some have argued that these developments could reflect stiffer global competition and the increased weight of developing countries in the global trading system (Rogoff, 2003). A study for the IMF's spring 2006 World Economic Outlook (WEO) finds that, in advanced economies, globalization has contributed to reducing the sensitivity of inflation to domestic capacity constraints and had a significant dampening effect on relative manufacturing prices, a result Chen and others (2004) confirm for the EU15 countries using sectoral data. The WEO study concludes that ongoing trade integration will continue to put downward pressure on prices in many industries, but that at the current juncture of diminishing economic slack, the primary risk relates to further commodity price increases, which are also partly driven by globalization. The impact of globalization on inflation is also being debated in Poland, where trade openness and capital flows have surged in the wake of transition, privatization, and deregulation.

3. **There are obviously implications for the conduct of the monetary policy**, if globalization indeed dampens price pressures. The National Bank of Poland (NBP) would be able to reach its 2½ percent inflation target with somewhat lower interest rates. However, if the magnitude or duration of the globalization effect is overestimated, monetary policy could turn out overly expansionary.

4. **This chapter explores the relationship between globalization and inflation in Poland, drawing on both aggregate and sectoral analyses**. Section B provides an overview of recent inflation developments in Poland, as well as in other New Member States of the EU (NMS). Section C discusses the broad channels through which globalization can affect inflation. Section D assesses the channels that operate at the macroeconomic level, along the line of the WEO study, whereas section E investigates the links at the sectoral level, along the line of Chen and others (2004). Section F concludes.

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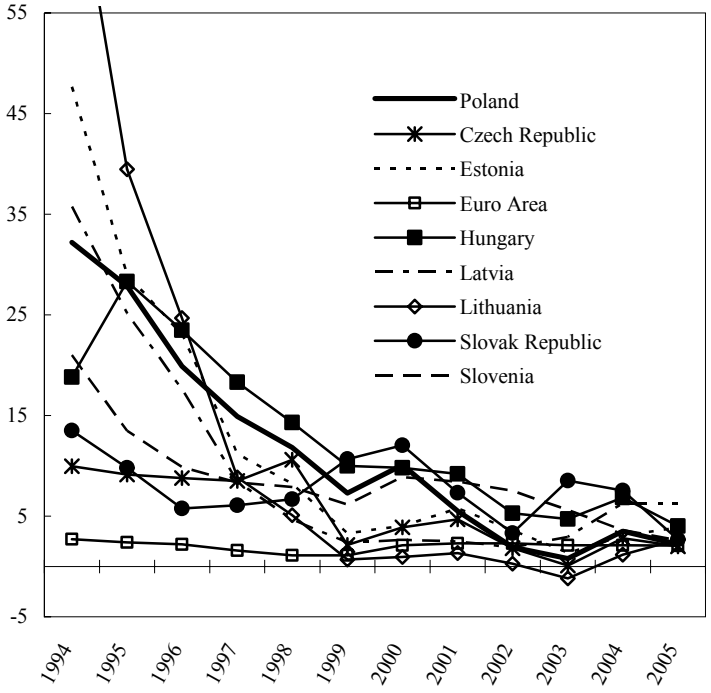
[1] Prepared by Céline Allard.

B. Inflation Developments and Their Determinants

5. **Polish inflation is currently the lowest in the European Union**. Convergence to EU inflation rates started later than in other NMS in the late 1990s, but by the turn of the century inflation came down sharply (Figure 1). Since the inflationary fillip in the context of EU accession in May 2004, much of which was related to food price adjustment, price evolution has been surprisingly subdued: from November 2005, 12-month HICP inflation has undershot the NBP's target of 2½ ± 1 percent, and it dipped below 1 percent in the first quarter of 2006, before picking up moderately again, to reach 1.4 percent in July 2006.[2]

Figure 1. CPI Inflation in the New Member States, 1994-2005
(In percent)

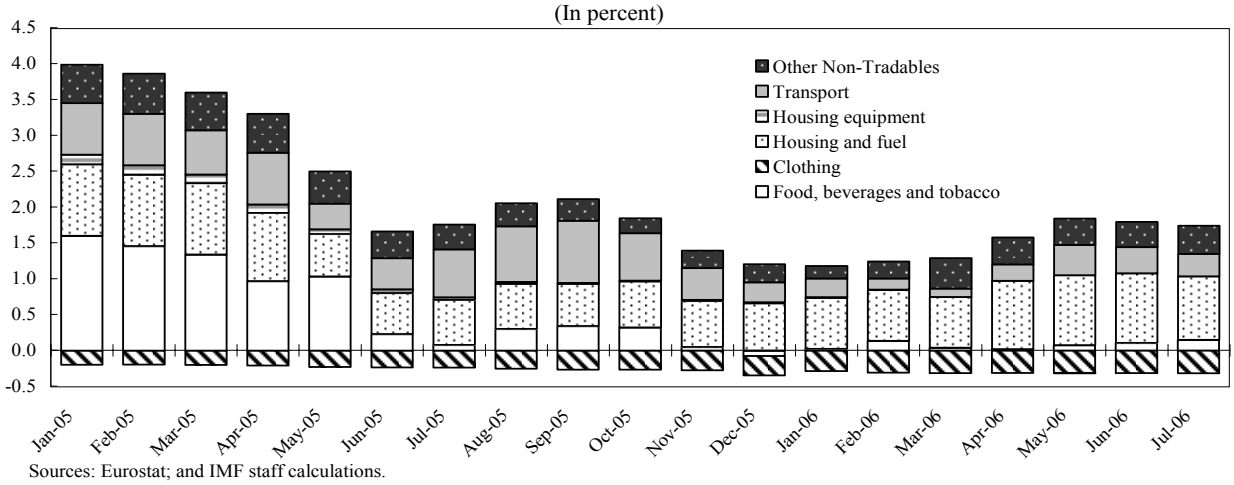


Source: IMF, World Economic Outlook.

6. **The decline over the last few months is largely attributable to idiosyncratic and temporary effects**. Food and transport prices have been the main drivers of price deceleration since early 2005: Out of the 2.9 percentage point decline in 12-month HICP inflation between January 2005 and March 2006, food prices explain 1.5 percentage points and transport prices 0.6 percentage points (Figure 2 and Table 1). The food price hikes related to EU accession were still reflected in the inflation rates of early 2005, while the Russian and Ukrainian bans on Polish food exports have been dampening domestic prices since end-2005, as products were redirected to local markets. Finally, oil price fluctuations, compressed mark-ups in the refinery sector and the appreciation of the zloty during 2005 all influenced transport prices.

[2] HICP inflation published by Eurostat has been higher than headline inflation compiled by the Polish Statistical office recently, reflecting different weights in the index, in particular for food products. To facilitate comparability across countries, HICP data is used throughout section B.

Figure 2. Poland: Contributions to 12-month HICP Inflation
(In percent)



Sources: Eurostat; and IMF staff calculations.

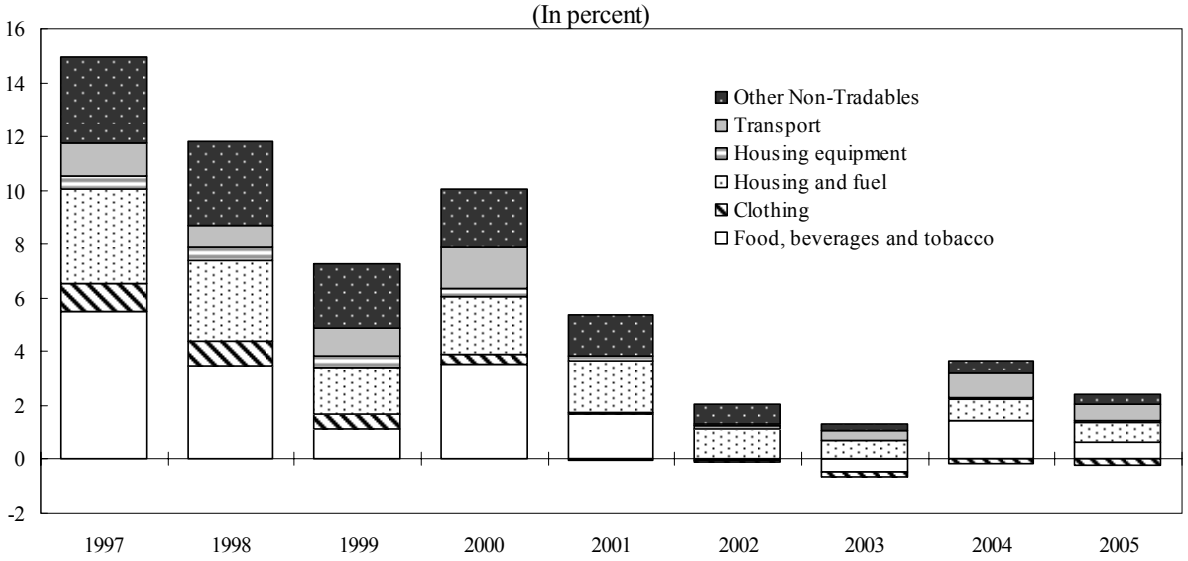
Table 1. Poland and Euro Area: Contribution to HICP Inflation, 1997-2006

	Annual average inflation			12-month inflation				
	1997	2004	2005	Jan 05	July 05	Dec 05	March 06	July 06
Poland								
HICP	15.0	3.6	2.2	3.8	1.5	0.8	0.9	1.4
of which contributions from:								
Food	4.3	1.3	0.4	1.4	-0.1	-0.3	-0.1	0.1
Clothing and footwear	1.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3
Housing, electricity and fuel	3.4	0.8	0.7	1.0	0.6	0.7	0.7	0.9
Transport	1.2	0.9	0.6	0.7	0.7	0.3	0.1	0.3
Euro area								
HICP	1.7	2.1	2.2	1.9	2.1	2.3	2.2	2.5
of which contributions from:								
Food	0.2	0.2	0.1	0.0	0.0	0.2	0.2	0.4
Clothing and footwear	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Housing, electricity and fuel	0.4	0.4	0.7	0.6	0.8	0.8	0.8	0.8
Transport	0.5	0.5	0.7	0.5	0.7	0.7	0.6	0.7

Sources: Eurostat; and IMF staff calculations.

7. **However, structural factors appear instrumental for disinflation over the medium to long term**. The same decomposition as in Figure 2 over 1997-2005 shows that prices decelerated across-the-board, reflecting enhanced monetary policy credibility and productivity gains in the real economy (Figure 3). In addition, price developments in the highly open textile sector have been contributing negatively to overall inflation consistently since 2002. This could potentially be related to increased trade openness, in particular since this sector has been subject to sharp competitive pressures from developing countries.

Figure 3. Poland: Contributions to Annual Average HICP Inflation
(In percent)



Sources: Eurostat; and IMF staff calculations.

8. **Inflation developments are not entirely homogenous across the NMS, but common patterns exist, in particular regarding prices for textiles, housing equipment and non-tradables** (Appendix I, Figures 1a and 1b). Poland exhibits an inflation pattern similar to that of the Czech Republic, and to some extent, Slovenia, Estonia and Lithuania, with a gradual across-the-board decrease followed by moderate inflation at present, while Hungary and Latvia are now showing signs of overheating.[3] Besides obvious gains in monetary policy credibility across the region that helped overall convergence towards Euro Area inflation rates, specific segments of the consumption basket seem to have dampened inflation in many of the NMS, in particular textiles, and to some extent, housing equipment, both of which are highly tradable. In addition, nontradables also contributed to the slowdown of prices throughout the region.

9. **This simple decomposition points to various potential driving forces behind Poland's decreasing inflation, globalization being only one of them**. One-off factors have without doubt reduced inflation in 2005.[4] The longer-run across-the-board deceleration could be rooted in monetary policy credibility gains, and better anchored inflation expectations; price stability imported, from trading partners where inflation is lower (Western Europe);

[3] These broad commonalities justify that the econometric analyses described in the following sections were conducted on panels including some or all of the other new member states, adjacent to Poland.

[4] Additional IMF staff work, based on a general dynamic factor model approach, corroborates this finding (van Elkan and others, 2006). To analyze the co-movements of inflation within the European Union, their study decomposes inflation in each country into common trends, shared by the 25 members, and a residual, which reflects country-specific elements. This residual is found to have been negative by about one percentage point during the first half of 2005 in Poland, but is likely to gradually shrink going forward.

increased competition in the wake of privatization; and large productivity gains. Regarding the latter, interestingly, there is no evidence that inflation of nontradables outstripped inflation of tradables, suggesting that Balassa-Samuelson effects did not play much of a role. Sector-specific developments of prices for textiles and housing equipment could reflect the dampening role of globalization, while declining inflation for nontradables points to domestic factors such as deregulation.

C. The Role of Globalization

10. **Poland is increasingly integrated into the world economy** (Table 2). In the last ten years, trade openness—defined as the ratio of imports to GDP—almost doubled, something that took the industrial countries the last thirty years of the 20th century to achieve. Financial flows and labor mobility also picked up, as cross-border transactions costs fell. How have such globalization-related changes affected inflation?

Table 2. Poland's Integration in the World Economy
(In percent of GDP)

	1995	2004
Trade openness 1/	23.9	41.5
Gross FDI flows	2.6	5.1

Sources: Eurostat; and National Bank of Poland.
1/ Imports over GDP.

11. **Three main channels can be identified, the first two playing at the macroeconomic level and another at a more microeconomic or sectoral level**:

- **With the responsiveness of prices to domestic output fluctuations potentially lowered by globalization, the policy trade-offs may have shifted in favor of lower inflation**. Through its impact on market access, competition and pricing decisions, but also because it allows more consumption smoothing via international borrowing and lending, globalization may have weakened the link between inflation and output fluctuations. In that context, policy makers' ability to temporarily stimulate output at the expense of inflation may have been reduced (Romer, 1993 ; Rogoff, 2003; Razin, 2004). Also, imprudent macroeconomic policies face increasingly severe sanctioning through large adverse international capital flows (Tytell and Wei, 2004).

- **Cheap imports could have reduced inflation directly**. With increased availability of foreign goods, relatively cheap imports account for a growing share in consumption and a higher weight in price indices, thus reducing measured inflation directly.

- **Globalization could also curb domestic production prices, as domestic enterprises face stronger competition, higher productivity growth becomes imperative, and wage pressures diminish**. Given the growing availability of close substitutes produced abroad and easily importable, domestic companies could face increased competition. In order to remain competitive, they have the option to lower their markups—all the more if they are initially in an oligopolistic situation—or to become more efficient and innovative. Over time, only the strongest firms survive,

implying increased aggregate productivity. Finally, as it becomes easier for firms to outsource production to abroad, domestic wage demands might become more modest.

12. **An additional question is whether the effects of globalization on inflation are permanent or only transitory**. Obviously, long run inflation is ultimately determined foremost by monetary policy. Hence, if globalization does indeed alter monetary policy incentives, it may have permanent effects. Alternatively, for a given inflation target, the benefit of globalization takes the form of making central banks' jobs easier, i.e., the target can be met at lower interest rates. As far as the effect from cheaper imports and more competition are concerned, they are likely to reduce inflation only as long as trade openness keeps rising. Once trade openness has settled at a higher level, competition is more intense, and price levels are lower, but price dynamics are not longer affected. In this vein, the WEO study concludes that industrial countries are unlikely to experience more than a temporary effect of globalization on inflation given their well-established monetary policy objectives and already low inflation targets, whereas, in emerging markets, greater openness is likely to remain an important factor behind the sustained improvement in inflation.

D. Macroeconomic Analysis

13. **This section analyzes empirically the relationship between inflation and globalization at the aggregate, or macroeconomic, level.** It focuses on the first two broad channels discussed above: did globalization reduce the sensitivity of prices to domestic conditions; and did the increasing availability of cheap imports curb headline inflation?

14. **An "augmented Phillips curve" is estimated to assess how trade openness affects the relationship between output and inflation.** Following the approach of the WEO study, the traditional Phillips curve framework, which relates the inflation rate to the slack in the economy, is extended: for the eight NMS in the panel dataset, consumer price inflation is related to its own lag (to take into account inflation persistence), the output-gap, and a combination of trade openness and output gap. This setting allows globalization to influence the tradeoff between inflation and domestic economic conditions either because prices of items consumed domestically are increasingly determined by global demand, or because stronger foreign competition reduces the pricing power of domestic firms, limiting their ability to raise prices during upswings.[5]

$$\Pi_{it} = \alpha\Pi_{it-1} + \beta\left(1 + \gamma\ Trade\,Openness_{it}\right)outputgap_{it} + \varepsilon_{it} \qquad (1)$$

with Π consumer price inflation, trade openness defined as the ratio of imports of GDP, and output gaps derived by running Hodrick Prescott filters on GDP series.

[5] Here trade openness is not introduced as an explanatory variable by itself. At this level of aggregation, there is insufficient variability to see an independent effect on domestic prices. See also the discussion in section E.

Depending on specifications, import price inflation, oil price inflation and exchange rate fluctuations are added to the regressions. Finally, a pre-1998 dummy was introduced, to parsimoniously capture credibility gains achieved by these monetary authorities of the NMS during the sample period.

Table 3. New Members States: Augmented Phillips Curve 1/

Dependent variable	Consumer Price Inflation			
Sector sample	Aggregate CPI for All Eight New Members, 1996-2004			
Estimation method	Arellano-Bond Dynamic Panel Estimation			
Explanatory variables	(1)	(2)	(3)	(4)
Lagged inflation	0.46***	0.36***	0.29***	0.29***
	(8.60)	(4.39)	(3.68)	(3.71)
Output gap	1.40**	1.41**	1.22**	1.17**
	(2.05)	(2.21)	(2.02)	(1.98)
Output gap * trade openness	-0.01	-0.013*	-0.012*	-0.012*
	(-1.42)	(-1.78)	(-1.68)	(-1.66)
Import price inflation			0.21***	0.19***
			(2.82)	(3.34)
Oil price inflation			-0.046	
			(-0.34)	
Change in nominal exchange rate			0.014	
			(0.46)	
Dummy prior to 1998		1.66*	1.63	1.90**
		(1.69)	(1.45)	(2.10)
Number of observations	56	56	56	56
Arellano-Bond test for residual autocorrelation				
(P(z) for H0: no correlation)	0.01	0.01	0.03	0.02
Sargan test (P-value)	0.24	0.27	0.42	0.38
Memorandum:				
Inflation-output elasticity for Poland				
1996	1.13	1.09	0.94	0.89
2004	0.93	0.85	0.73	0.69

Source: IMF staff calculations.
1/ T-statistics are reported in parentheses. Coefficients significant at the 1 (resp. 5 and 10) percent level are shown with *** (resp. ** and *).

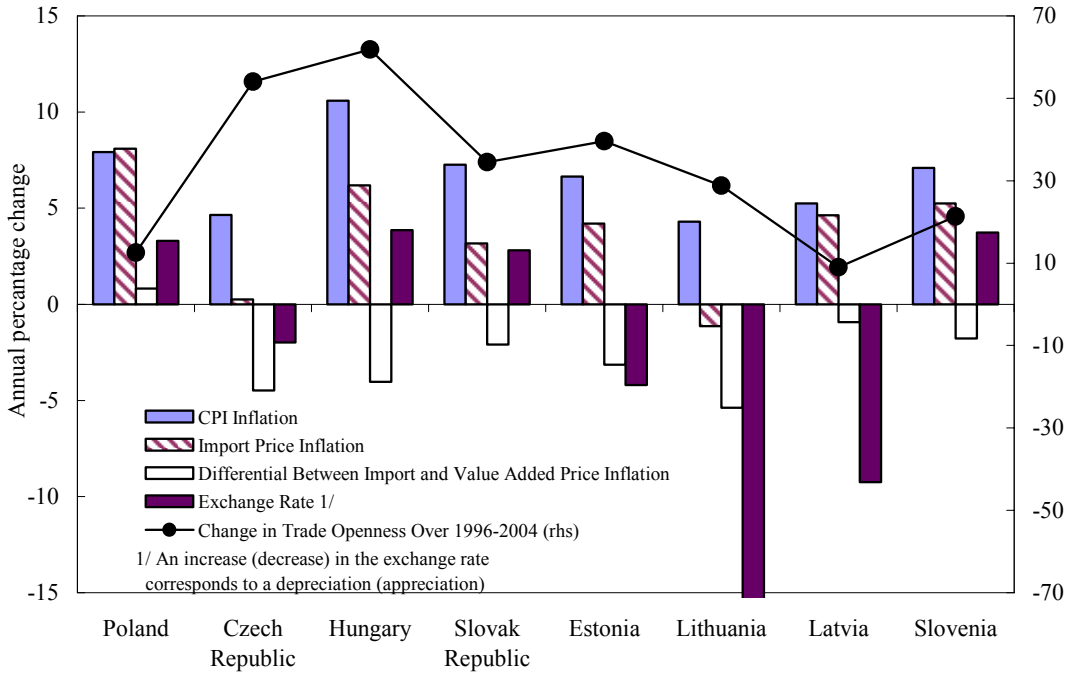
15. **The econometric analysis suggests that the sensitivity of prices to domestic economic conditions in the eight NMS has been falling in the wake of higher trade integration** (Table 3). The trade openness coefficient appears significant (although only at the 10 percent level) and negative, therefore lowering the sensitivity of inflation to the output gap. According to equation 4 of Table 3, the rise of trade openness from 1996 to 2004 reduced the inflation-output elasticity in Poland by more than 20 percent, from 0.89 to 0.69. In other words, if output rises above its long-term trend by 1 percentage point inflation would currently increase by 0.7 percentage points in the first year, compared to 0.9 percentage points ten years ago. This is consistent with the view that in the wake of globalization, price developments in Poland increasingly also reflect global developments at the expense of

domestic ones. A flatter Phillips curve could also be the result of monetary policy becoming less activist and more focused on price stability as globalization altered policy incentives.

16. **Import price developments apparently did not contribute much to the decline in inflation in Poland.** This might be because much of the expanding trade was with high-price Europe rather than low-price China or India. In 2004, the latter accounted for only 5 percent of Poland's imports compared to 60 percent in the case of western Europe. Moreover, exchange rate depreciation offset much of any fall in world market prices.

- Compared to the other NMS, Polish import prices expressed in domestic currency rose at a relatively high rate, and unlike in any of the neighboring countries, they actually increased at a higher rate than the overall CPI (Figure 4 and Appendix II). Exchange rate developments explain at least partially this result, as moderating effects from cheaper imports in foreign currencies were counteracted by the effective zloty's depreciation during the sample period (1996-2004). Import prices grew the least in countries with the largest appreciation, notably the Baltics, which were strongly affected by the ruble depreciation, in the aftermath of the 1998 Russia crisis. Looking forward, the zloty could well appreciate, but the effect of import prices on inflation is unlikely to be large.

Figure 4. Price and Trade Openness,
Evolution over 1996-2004



Sources: Eurostat; IMF, World Economic Outlook; and IMF staff calculations.

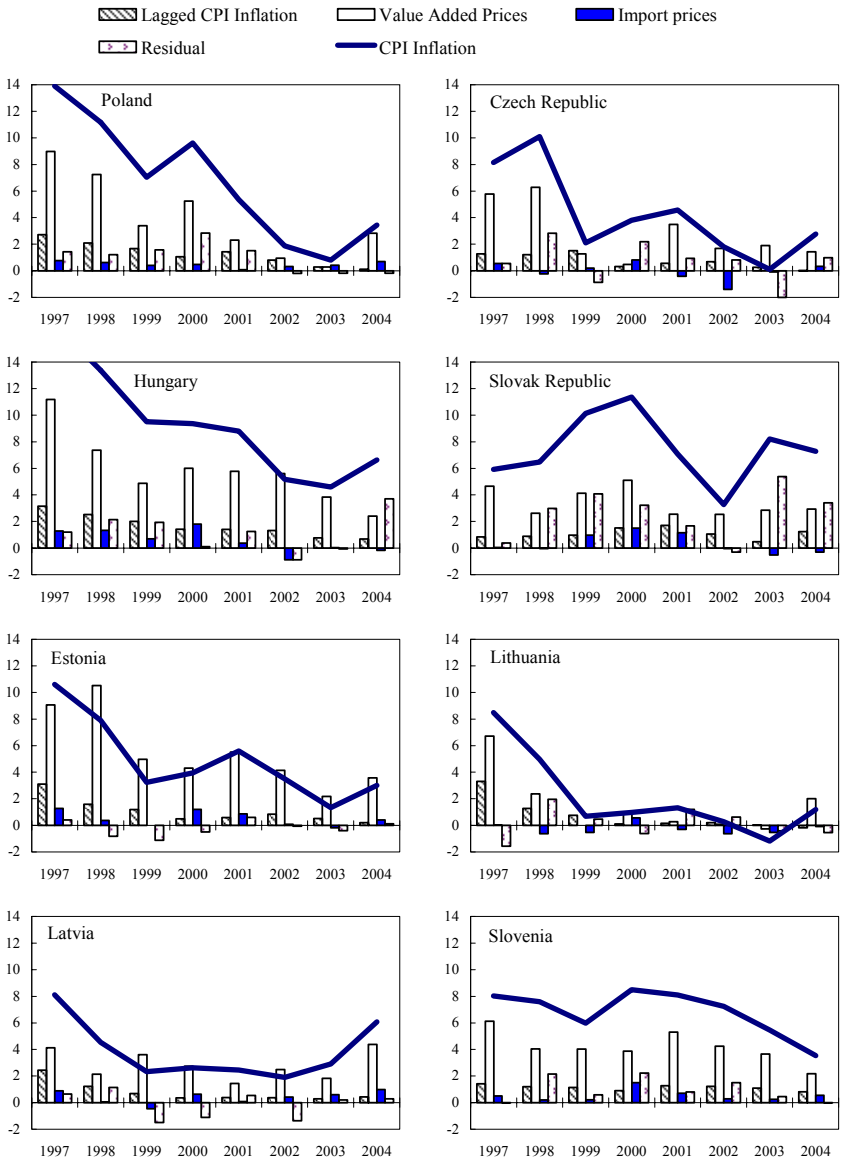
- A simple panel estimation confirms the limited influence of import prices. Inflation of import prices (pimp) weighted by trade openness (θ) contributes only 16 percent to

overall inflation when controlling for the inflation of value added prices (pva) and lagged inflation in a sample covering the NMS in the years 1996-2004:

$$\Delta l(cpi) = \underset{(2.52)}{0.16}\,\Delta l(cpi_{-1}) + \underset{(6.48)}{0.64}\,\Delta l(pva) + \underset{(3.01)}{0.16}\,\theta\Delta l(pimp) \qquad (2)$$

Figure 5 shows the implied decomposition of consumer price inflation. In the case of Poland, the bulk of the inflation slowdown over the period comes from changes in value added prices—although they are not immune to the effects of globalization as explained below. The contribution of import price inflation is minor and constant over time.

Figure 5. New Member States: Contributions to CPI Inflation 1/



Source: Eurostat; and IMF staff calculations.

1/ Reading note: Using estimated relation (2), the evolution of CPI is broken down in the contributions of past CPI inflation, value added inflation, import price inflation, and of the residual, all shown here in columns.

E. Sectoral Analysis

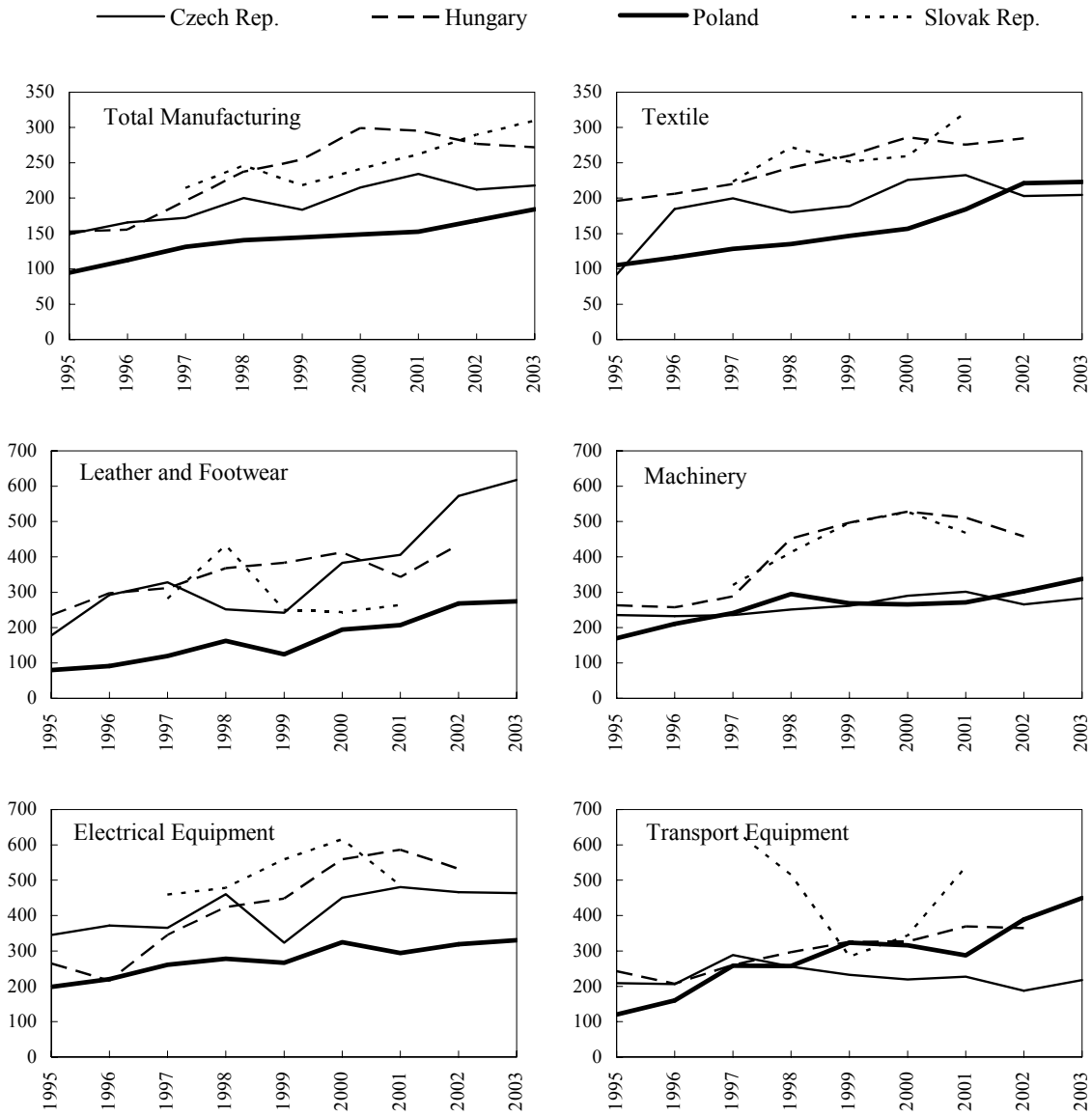
17. **This section analyzes the role of globalization on domestic price patterns, drawing on sectoral price data for the manufacturing industry**. As explained in section C, increased access of foreign producers to the Polish market might have intensified competition, forcing producers to lower mark-ups, and hastening the exit of inefficient firms (Chen and others, 2004). A sectoral approach is required to study the relationship between production prices and globalization as there is insufficient data variability in trade openness at the country level (Figure 6). Data availability considerations restricted the sample to 14 sub-sectors of the manufacturing industry—where the globalization process has been the strongest—for Poland, Hungary, the Czech Republic and the Slovak Republic during 1995-2003 (see Appendix 3 for a detailed description of the dataset).

18. **The analysis seeks to relate price, productivity and wage developments to changes in the sectors' trade openness**. Following Chen and others (2004) and the WEO study, changes in value added prices are regressed on changes in sectors' import-to-value-added ratio.[6] The expectation is for a negative sign, as faster increases in trade openness would be associated with smaller value-added price increases. The role of trade openness evolution on productivity gains and wage developments are also assessed, the intuition being that larger exposure to foreign competition spurs innovation and restructuration, and dampens wage pressures. Obviously, as the region underwent tremendous structural changes over the period at hand, the estimation results need to be interpreted with caution.

19. **The econometric analysis supports the intuition that globalization dampens domestic prices.** The price equation is estimated in a panel model, controlling for labor productivity growth and overall consumer price inflation—as a proxy for the monetary policy stance—and for country and sector-specific factors (Table 4). The possibility of reverse causality from prices to the measure of globalization is addressed through instrumentalization, as disturbances that lift value added prices could also lower competitiveness and therefore raise the import ratio. In all specifications, the coefficient of trade openness is significant and negative. It is somewhat larger when estimated for Poland alone, although caution is warranted in interpreting this finding, considering the small size of the sample.

[6] Chen and others, as well as the authors of the WEO study, use production prices, but due to data availability constraints, value added prices were used here. This obviates the need to control for exchange rate movements related to imported intermediary consumptions. Chen's paper considers EU 15 countries, while the WEO study extends the analysis to a larger OECD sample. This paper applies the methodology to four NMS.

Figure 6. Central Europe: Trade Openness for Various Manufacturing Sub-Sectors, 1995-2003 1/



Sources: OECD STAN database; and IMF staff calculations.

1/ Trade openness is defined as the ratio of imports over value-added, in value.

Table 4. Impact of Trade Openness on Value Added Price Inflation 1/

Dependent variable	Change in value added price									
Sector sample	Subsectors of the manufacturing sector (14 sub-sectors), Poland, Hungary, Czech Republic, and Slovak Republic									
Estimation method	FE (1)			2SLS 2/ (2)			2SLS 2/ (3)			2SLS 2/ (4)
Explanatory variables	full sample 1996-2003	1999 and beyond	Poland only 3/	full sample 1996-2003	1999 and beyond	Poland only 3/	full sample 1996-2003	1999 and beyond	Poland only 3/	full sample 1996-2003
Change in trade openness (import share)	-0.39***	-0.52***	-0.71***	-0.54***	-0.42***	-0.60***	-0.68***	-0.45***	-1.00**	-0.35***
	(-10.10)	(-9.56)	(12.18)	(-4.24)	(-2.67)	(-3.54)	(-4.89)	(-2.84)	(-2.12)	(-2.93)
Change in labor productivity	-0.58***	-0.64***	-0.90***	-0.67***	-0.58***	-0.84***	-0.74***	-0.60***	-1.03***	-0.46***
	(-17.04)	(-15.30)	(-20.12)	(-8.46)	(-6.31)	(-9.95)	(-8.64)	(-6.51)	(-5.15)	(-5.41)
Change in national CPI	1.28***	1.41***	1.67***	1.62***	1.38***	1.52***	1.39***	1.39***	0.88*	1
	(8.36)	(3.52)	(8.31)	(7.35)	(3.43)	(5.35)	(5.66)	(3.46)	(1.75)	constrained
Number of observations	350	210	98	294	210	84	252	210	70	182
Instruments				lagged level and change in nominal effective exch. rate and lagged change in trade openness			lagged changes in nominal effective exch. rate and lagged change in trade openness			lagged changes in nominal effective exch. rate and lagged change in trade openness
IV tests Anderson statistic (P-val)				0.00	0.00	0.02	0.00	0.00	0.71	0.00
Sargan statistic (P-value)				0.16	0.24	0.04	0.78	0.40	0.00	0.22

Source: IMF staff calculations.

1/ T-statistics are reported in parentheses. Coefficients siginificant at the 1 (resp. 5) percent level are shown with *** (resp. **).

2/ With heteroskedasticity-consistent standard errors

3/ Over the full sample (1996-2002)

20. **Globalization could have lowered domestic prices by between ½ and 1 percentage point per year since the middle of the 1990s, mainly through lower mark-ups.** According to the central estimates (equation 3 of Table 4), globalization reduced manufacturing price inflation by 5.6 percentage points per year in Poland, implying an impact on consumer price inflation of between 0.5 and 0.9 percentage points per year during 1996-2003 (Table 5).[7] The higher estimate applies if one assumes that the effect of globalization on manufacturing prices extends to the tradable goods sector as a whole. However, as the pace of trade integration was particularly high at the beginning of the transition process, and has since slowed down, the effect of globalization on inflation runs now more likely between -0.2 and -0.4 percentage points per year. Productivity gains account for an even larger share of price moderation, lowering inflation by about 1 to 1½ percentage points per year on average over the whole sample period, and by ¾ to 1¼ percentage points since 1999. As the impact of globalization on innovation is likely to be captured by the coefficient on labor productivity, the trade-openness effect discussed here reflects primarily mark-up compression in the wake of intensified competition.

Table 5. Impact of Trade Openness on Inflation in Poland
(In percentage points, as estimated in Equation 3 of Table 4)

Estimation sample	1996-2003	1999-2003
Change in import share	8.3	5.3
Change in manufacturing value-added prices	-5.8	-4.8
Impact of trade openness on manufacturing VA prices	-5.6	-2.4
Impact on CPI 1/		
lower bound 2/	-0.5	-0.2
upper bound 3/	-0.9	-0.4

Source: IMF staff calculations.
1/ Using the equation (2) estimated in section D, linking value added prices, import prices and CPI.
2/ Using the weight of the manufacturing sector in overall value added, at 15 percent.
3/ Assuming the globalization impact applies to the whole tradable sector, whose weigh in overall value added reaches 25 percent.

21. **Wages appear to have been stimulated rather than depressed by increased trade openness** (Table 6). In a wage setting equation, labor cost growth is related to the change in labor productivity, overall inflation, the unemployment rate—as slack in the economy reduces wage demands—and to the change in trade openness. Although results are less significant than those of the price equation, trade openness is found to have a positive impact on wages. This would imply that the wage bargaining in the four central European countries was not predominantly influenced by threats of relocation to low-cost countries. Rather, it seems that growing trade integration pushed wages up, toward those in industrialized countries, in particular the EU15, which remains the largest trade partner of the NMS.

[7] The WEO study finds that the increased trade openness could have reduced relative producer prices in manufacturing by about 0.3 percentage points a year in industrial countries over the past 15 years.

Table 6. Impact of Trade Openness on Labor Cost Inflation, "Augmented" Wage Setting Equation 1/

Dependent variable	Change in Wages								
Sector sample	Subsectors of the Manufacturing Sector (14 sub-sectors), Poland, Hungary, Czech Republic, and Slovak Republic								
Estimation method	FE (1)			2SLS 2/ (2)			2SLS 2/ (3)		
Explanatory variables	full sample 1996-2003	1999 and beyond	Poland only 3/	full sample 1996-2003	1999 and beyond	Poland only 3/	full sample 1996-2003	1999 and beyond	Poland only 3/
Change in trade openness (import share)	0.06**	0.10**	0.04	0.28**	0.23*	0.18	0.35**	0.26**	0.18
	(2.07)	(2.22)	(1.47)	(2.32)	(1.84)	(1.60)	(2.38)	(2.02)	(1.56)
Change in labor productivity	0.12***	0.15***	0.02	0.25***	0.22***	0.08	0.29***	0.23***	0.08
	(4.56)	(4.19)	(1.16)	(3.42)	(2.97)	(1.56)	(3.30)	(3.12)	(1.58)
Change in national CPI	0.65***	0.57	0.86***	0.33	0.44	0.68*	0.47**	0.41	0.65**
	(5.45)	(1.59)	(4.20)	(1.37)	(1.16)	(1.86)	(2.50)	(1.07)	(2.30)
Unemployment rate	-0.86***	-2.97***	-0.69**	-1.27***	-3.34***	-0.83**	-0.84***	-3.43***	-0.86**
	(-4.07)	(-5.92)	(-2.41)	(-3.44)	(-5.46)	(-2.02)	(-3.04)	(-5.51)	(-2.50)
Number of observations	350	210	98	294	210	84	336	210	98
Instruments				lagged level and change in nominal effective exch. rate and lagged change in trade openness			lagged level in nominal effective exch. rate and lagged change in trade openness		
IV tests Anderson statistic (P-val)				0.00	0.00	0.07	0.00	0.00	0.71
Sargan statistic (P-value)				0.06	0.37	0.90	0.81	0.63	0.00

Source: IMF staff calculations.

1/ T-statistics are reported in parentheses. Coefficients siginificant at the 1 (resp. 5 and 10) percent level are shown with *** (resp. ** and *).

2/ With heteroskedasticity-consistent standard errors.

3/ Over the full sample (1996-2002), includes a dummy for 1999 for which year labor costs jumped by some 30 percent.

EU integration and increased labor mobility to western Europe could be corroborating factors. In that sense, globalization would be doubly beneficial to Polish households' real purchasing power, firstly through depressed inflation, and secondly through higher wages. But of course, productivity gains would then need to adjust accordingly.

22. **The study cannot prove an impact of globalization on productivity growth, due to data deficiencies or the relatively short sample period**. Unlike in industrialized countries, data on determinants of sectoral labor productivity, such as the stock of capital, investment or R&D spending, used in other studies, are either unavailable or of poor quality in the NMS. Hence, a very simple equation regressing sectoral labor productivity on trade openness and gross fixed capital formation as a ratio of value added does not yield plausible results: both explanatory variables have negative coefficients. The absence of econometric results should not be construed as evidence that trade openness is without effect on domestic firms' productivity. Further research is needed in this area, as better data become available. In addition, Chen and others (2004) find that even in industrialized countries, in the short run, the more substantial channel remains through prices, whereas the indirect impact of trade openness through productivity gains applies only in the longer run: the relatively short sample period (1996 to 2003) in this analysis is hence a likely reason why the productivity channel appears not to play.

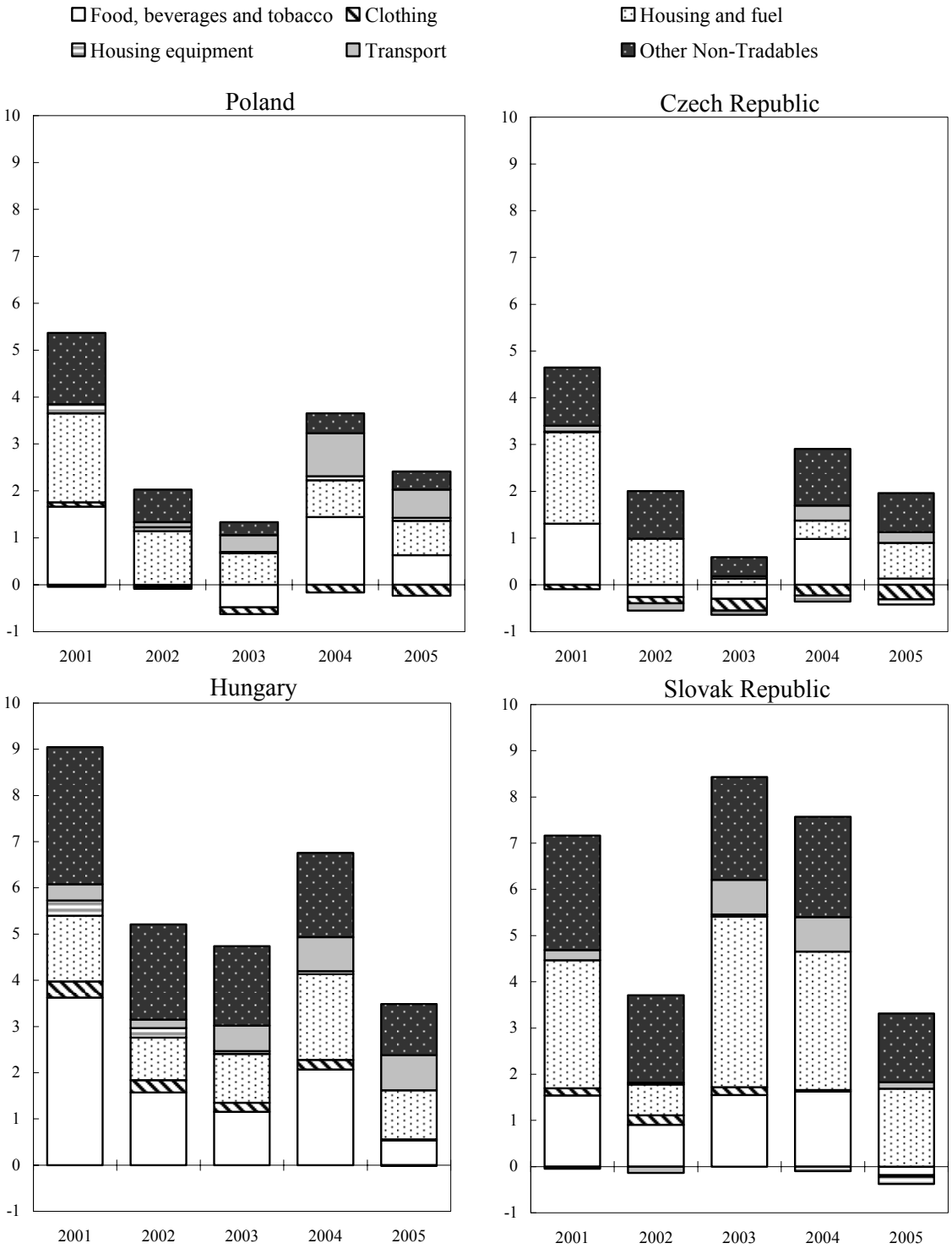
F. Concluding Remarks

23. **This chapter provides evidence that globalization significantly dampened down inflation in central Europe over the last ten years, and somewhat more so in Poland than elsewhere in the region.** Globalization appears to have strengthened incentives for a less activist monetary policy focused on price stability. Moreover, increasing exposure to global markets seems to have forced firms in the manufacturing sector to reduce markups. This effect was particularly pronounced in the central European countries where import penetration converged toward levels of advanced economies in a relatively short period of time. Hence, rising trade openness subtracted as much as ½ to 1 percentage points from inflation in Poland per year during 1996-2003, substantially more than in the advanced economies.

24. **The effect of globalization on inflation through mark-up compression seems set to diminish in the future.** Following the rapid growth of trade integration during transition and the run-up to EU membership, import shares are now likely to grow more moderately in central European economies. Consequently, pressure on mark-ups would intensify more slowly going forward and the relief for inflation would diminish. However, imported price stability from the increasing availability of cheap imports that was offset in Poland by zloty depreciation in the past could play a more dominant role in the future if the exchange rate remains stable or appreciates.

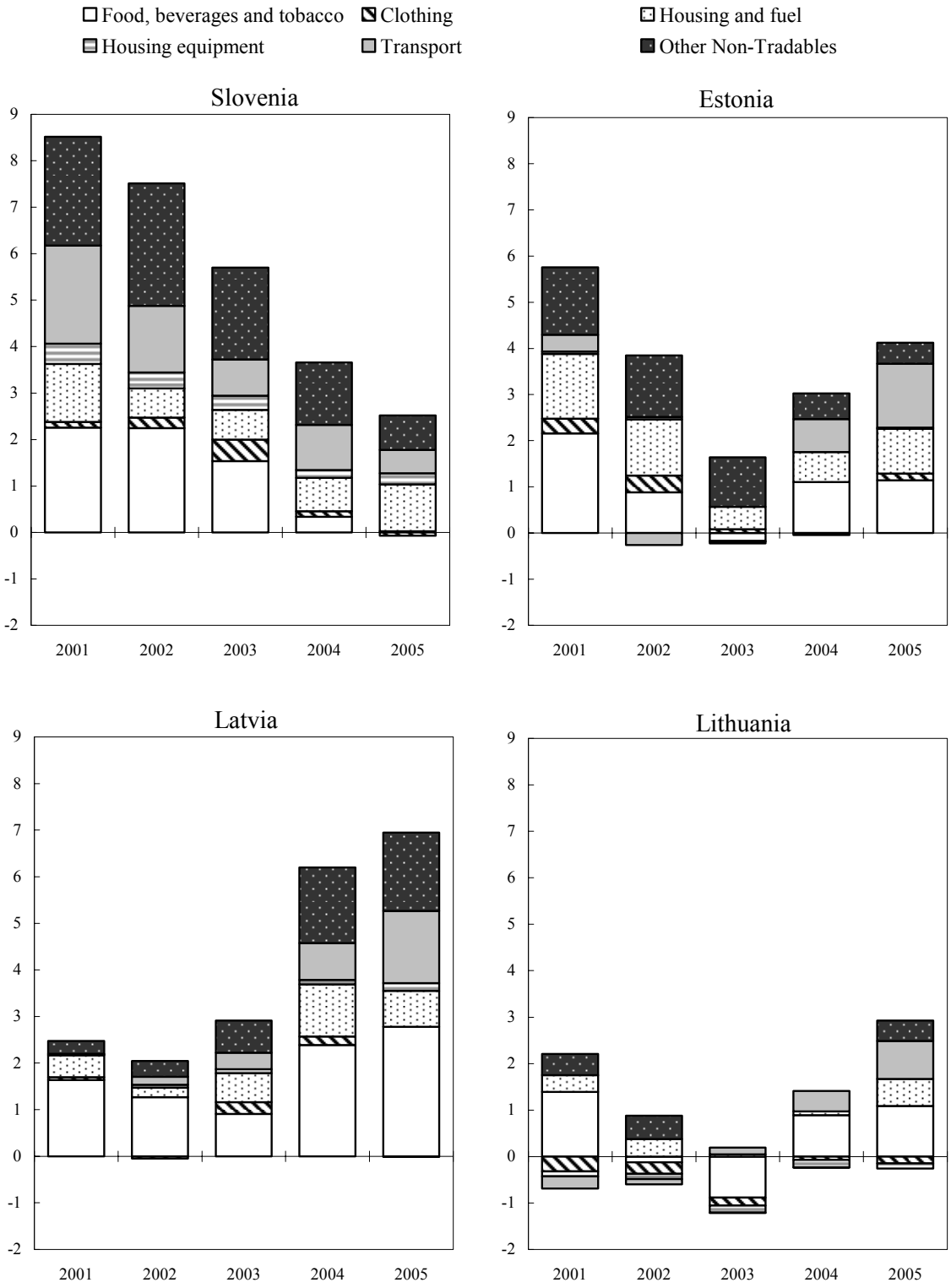
25. **Other moderating effects of globalization on inflation are likely to endure.** Unless globalization is reversed, the strong incentives for a monetary policy that is focused on price stability should remain in place. Moreover, even if trade integration advance more slowly from here on out, it will remain true that price developments in Poland are more closely tied to global conditions than in the past.

Appendix I. Figure 1a. New Member States: Contributions to HICP Growth Rate
(In percent)



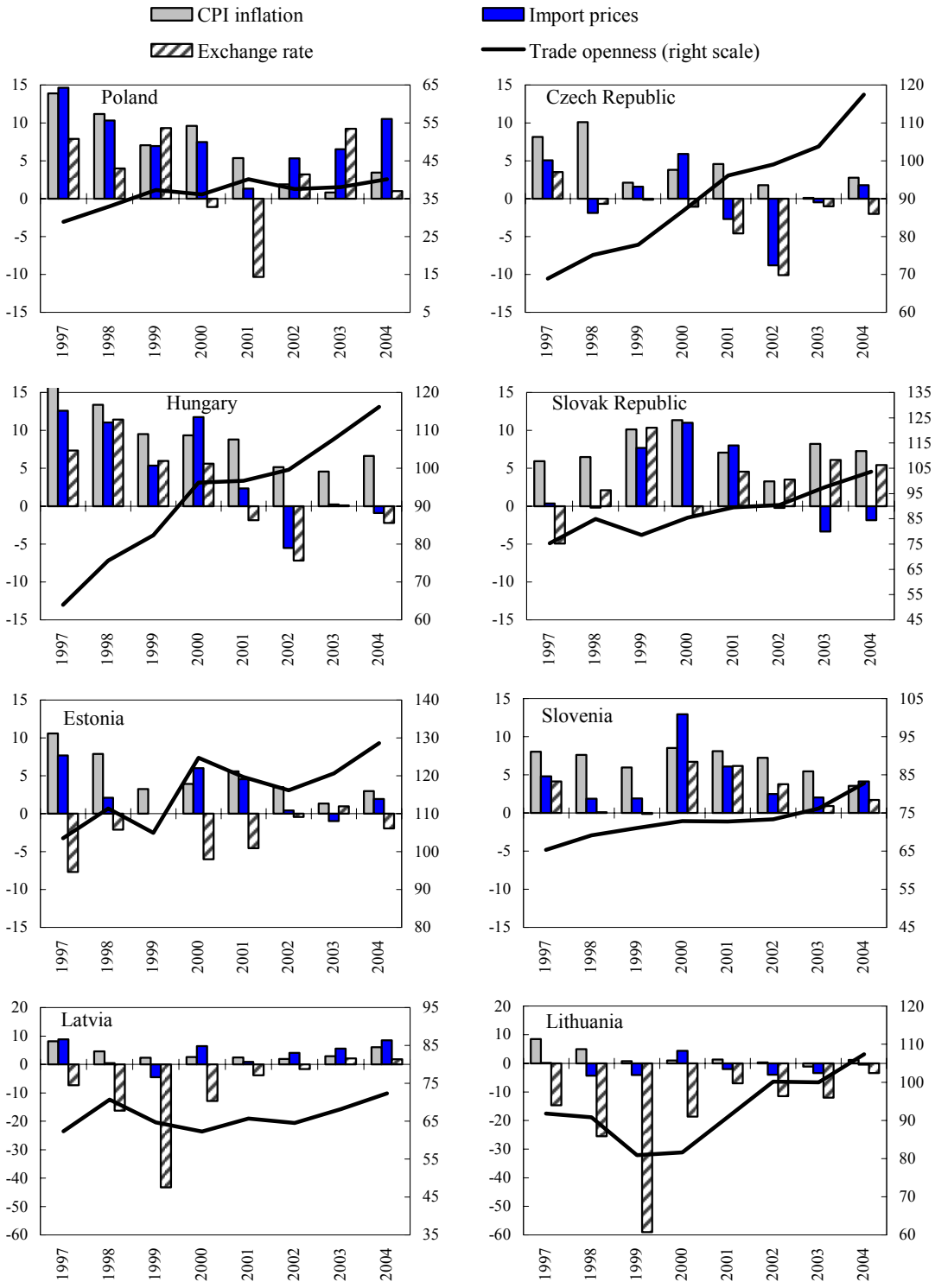
Sources: Eurostat; and IMF staff calculations.

Appendix I. Figure 1b. New Member States: Contributions to the HICP Growth Rate
(In percent)



Sources: Eurostat; and IMF staff calculations.

Appendix II. New Member States: Consumer Price Inflation, Import Price Inflation, Exchange Rate Evolution and Trade Openness 1/



Sources: Eurostat; and IMF staff calculations.

1/ A decrease (increase) in the exchange rate means an appreciation (depreciation).

Appendix III. Dataset Used in the Sectoral Approach

The sectoral analysis uses a disaggregation of the sectors at the two- or three-digit level of the ISIC Rev 3 classification depending on data availability. Precisely, 14 sub-sectors were considered:

- Food products, beverages and tobacco
- Textiles and textile products
- Leather, leather products, and footwear
- Wood and products of wood and cork
- Pulp, paper, paper products, printing and publishing
- Coke, refined petroleum products and nuclear fuel
- Chemicals and chemical products
- Rubber and plastic products
- Other non-metallic mineral products
- Basic metals and fabricated metal products
- Machinery and equipment, n.e.c.
- Electrical and optical equipment
- Transport equipment
- Manufacturing n.e.c.

Data were constructed for Poland, Hungary, and the Czech and Slovak Republics, with all data available between 1995-2003. Most of the data are from the OECD's Structural Analysis (STAN) database. The following are the main variables (from STAN unless otherwise noted)

- *Value-added prices*: defined as the ratio of the value of value added at basic prices and the volume of value-added in each sector. For Poland, since data for the volume of value-added was not available at that level of disaggregation in the STAN dataset, the Groningen Growth and Development Center database was used (http://www.ggdc.net/). Compiled by the faculty of economics at the University of Groningen (Netherlands), it uses for this variable, data published in the Statistical Yearbook of Industry by the polish Statistical Office (GUS).
- *Trade openness*: defined as the ratio of the import value to the value-added in each sector. The imports referred to are those produced by foreign producers in the same sector.
- *Labor productivity*: defined as the ratio of the volume of value-added in each sector to the number of employees.
- *Wages*: defined as the ratio of the total labor costs of employees to the number of employees in each sector. For Poland, data are collected directly from the Polish Statistical Office (GUS), which at the time of the study, were only available until 2002.
- *Aggregate CPI index* and *unemployment rate*: are extracted from the IMF World Economic Outlook (WEO) database for each country.
- *Nominal Effective Exchange Rate*: is extracted from the IMF INS database, for each country.

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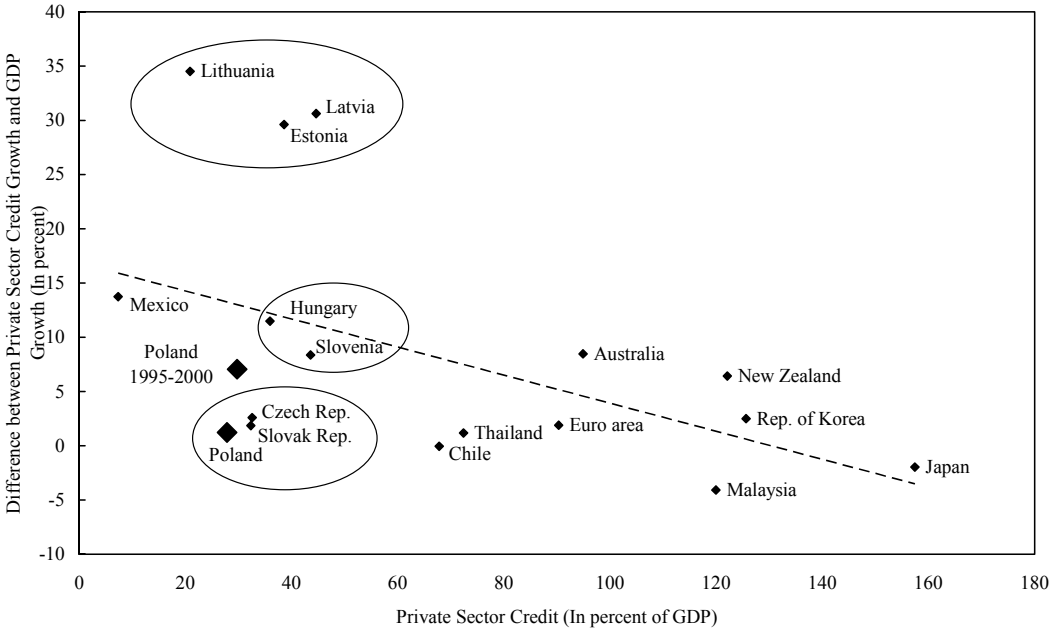
II. CREDIT, GROWTH, AND FINANCIAL STABILITY[8]

A. Introduction

26. Two main issues at the interface between economic growth and financial stability are germane to this year's Article IV consultation and the FSAP Update:

- **The first is why the recent pace of financial catching-up has been so much slower in Poland than in its regional peers, and whether this might hamper Poland's long-term economic prospects**. In a country like Poland, private sector credit can be expected to grow faster than GDP, as bank intermediation rises to levels consistent with Poland's level of economic development and other country characteristics. Yet, following a period of rapid expansion in the 1990s, lending to the private sector came to a standstill in the early 2000s. Since then, nominal private sector credit has been growing only marginally faster than nominal GDP—the lowest rate among new member states of the European Union (NMS),[9] comparable to that in countries with much more developed financial systems. Although private sector credit started to recover in recent quarters, the overall pace of financial deepening remains subdued.

Financial Deepening in Selected Countries, 2001-05



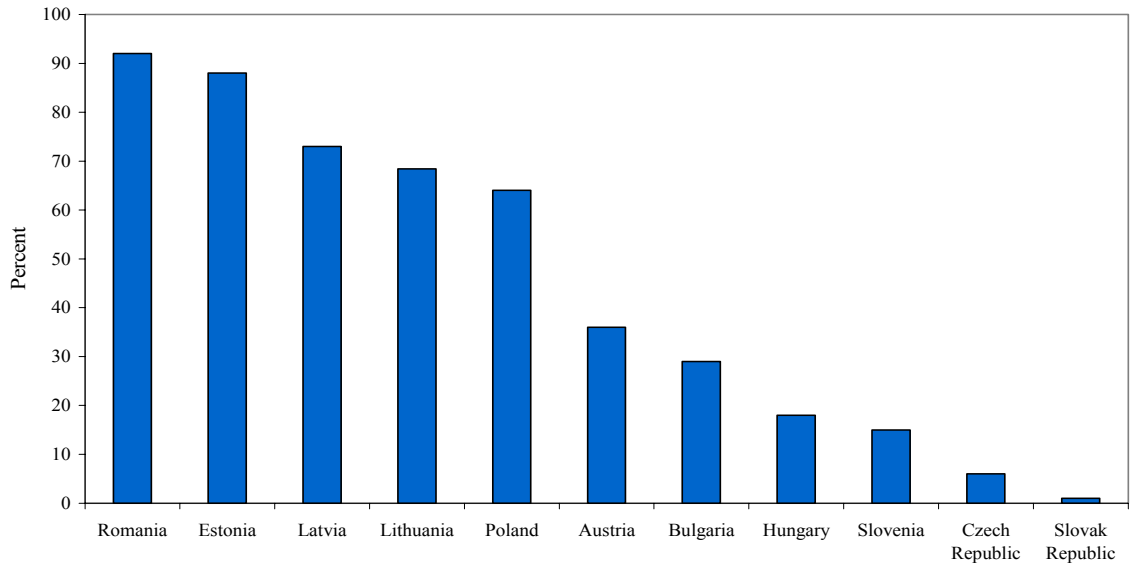
Sources: National central banks; the IMF's *International Financial Statistics* ; and IMF staff estimates.

[8] Prepared by Natalia Tamirisa (EUR) and Martin Čihák (MCM). This chapter serves as a background study for both the Article IV consultation and the FSAP Update.

[9] The eight central and eastern European countries that joined the European Union (EU) in May 2004: the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic, and Slovenia.

- **The second question is how significant the prudential risks associated with rapid growth in housing loans are**. The low figures on total credit growth mask significant differences in the dynamics of corporate and household credit: corporate lending has been subdued in recent years, while household credit has been expanding briskly. Housing loans to households, in particular, grew at an average annual rate of close to 40 percent in the last four years. Moreover, about two thirds of these loans have been indexed to foreign currency—one of the highest shares in Europe and among the NMS.

Selected Countries: Foreign Currency Housing Loans to Households, 2005
(In percent of total housing loans to households)



Source: National Bank of Poland; Bank of Lithuania.

27. **This chapter explores the above two questions using a gamut of methodologies and data**. It examines aggregate and bank-level data for Poland and key comparator countries, undertaking new analyses and drawing on existing studies. It draws on discussions with policymakers and market representatives in Poland during the Financial Sector Assessment Program (FSAP) Update, as well as the analysis of credit issues in the *Financial Stability Reports*, *Reports on Developments in the Financial System*, and *Summary Evaluations of the Financial Situation of Polish Banks* prepared by the National Bank of Poland (NBP).

28. **The chapter is organized as follows**: Section II.B discusses credit developments in the last decade and factors driving these developments and assesses implications for economic growth. Section II.C examines reasons for rapid growth of foreign currency lending and implications for financial stability. Section II.D (and Appendix) review cross-country experiences with policy responses to rapid credit growth of foreign currency credit and discuss recent policy measures taken in Poland. Section II.E concludes the chapter.

B. Why Has Credit Growth Been So Slow?

Analysis Based on Aggregate Data

29. **Overall credit growth in Poland has been slow since the early 2000s largely due to declining corporate credit, while household credit has been expanding briskly** (Figures 1-2). Corporate credit growth, which had been falling since the late 1990s, bottomed out in early 2005, and since then has been slow to recover. These trends largely reflect slow growth of credit to private companies, which added to the negative contribution from declining credit to state-owned companies. Although also on a declining trend until recently, household credit growth has remained positive, and last year it overtook corporate credit as a share of total outstanding credit to the private sector. Housing loans have been among the fastest growing components of credit both in the household sector in recent years. Although credit card borrowing has also been growing rapidly, it still accounts for a very small share of total household credit.

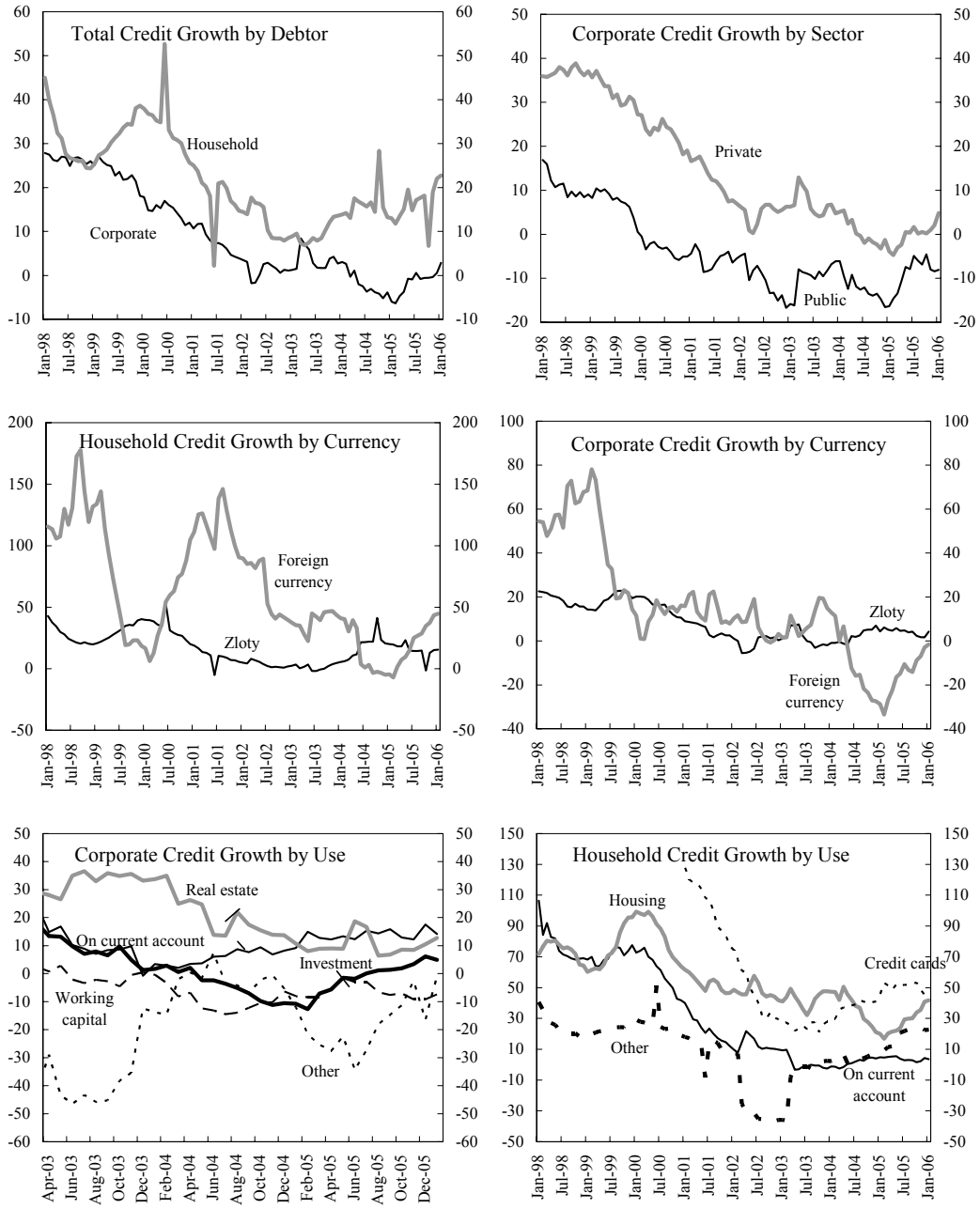
30. **Lackluster credit growth during 2000–05 partly reflected weak economic activity** (Figures 3-4). As economic growth slowed in the early 2000s, corporate credit growth also started to slow from the double-digit rates of the 1990s. Despite a pickup in economic activity in 2003–04, corporate credit growth remained subdued. The main reason for slow corporate credit growth during this period was high corporate liquidity, which, against the backdrop of weak corporate investment, enabled companies to fund themselves internally. Corporate credit growth does not seem to have been crowded out by bond issuance or external borrowing, which remained subdued in recent years. Household credit growth also slowed in the early part of this decade, albeit less so than corporate credit growth. The slowdown in household credit largely reflected slower growth in loans for purchases of consumer durables, while housing credit continued to expand at a robust pace.

31. **Supply-side factors also weighed on credit growth** (Figures 3-4). As the economic environment deteriorated and loan defaults rose, banks, which had just started restructuring, became more cautious about extending new loans. The share of nonperforming loans (NPLs) in total corporate loans more than doubled in five years: from 13 percent in 1998 to almost 30 percent in 2003.[10] According to the NBP, the quality of corporate loans in the distribution and construction sectors, which accounted for a substantial portion of banks' portfolios, deteriorated most significantly. Households' repayment capacity also weakened as unemployment rose and wage growth slowed, and the share of nonperforming loans in total household loans increased. In addition to slowing economic growth, overly lenient lending

[10] Strict loan classification rules and efforts of recently privatized banks to clean up their balance sheets contributed to the large increase in NPLs during this period.

practices in the preceding years of credit expansion contributed to the significant deterioration in asset quality in the early part of this decade.[11]

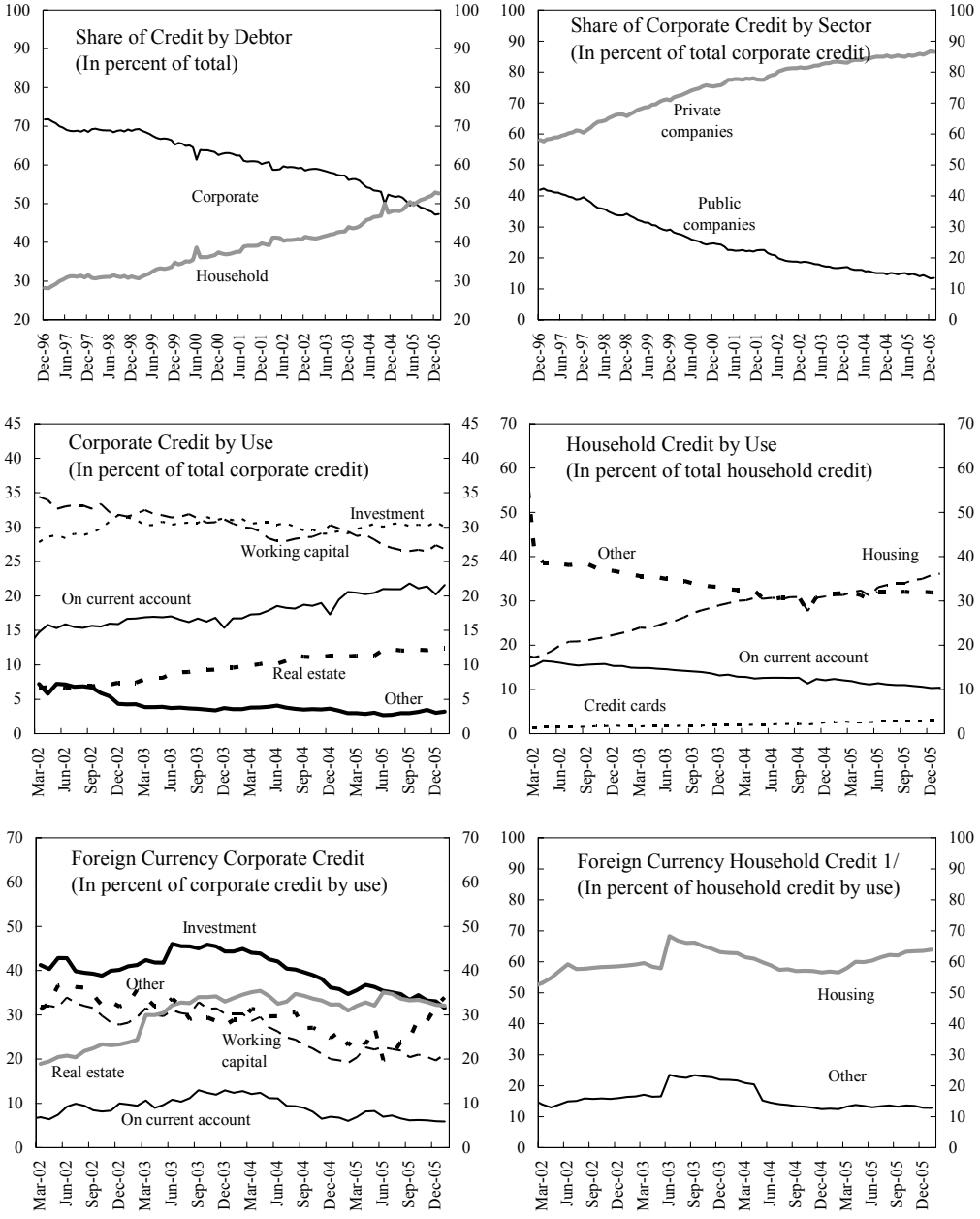
Figure 1. Poland: Growth of Credit to the Private Sector, 1998-2006
(Annual percent change)



Source: National Bank of Poland.

[11] See the NBP's *Summary Evaluation of the Financial Situation of Polish Banks*, various issues.

Figure 2. Poland: Composition of Credit to the Private Sector, 1996-2006
(In percent of total)



Source: National Bank of Poland.

1/ The shares of foreign currency-denominated loans in total credit card loans and in current account loans were below 2 percent during 2002-05 and are not reported.

32. **An econometric analysis allows the demand- and supply-side factors of credit growth to be explored in more detail**. The analysis is based on a simple model, where the growth of aggregate bank credit to households and corporates depends on the basic proxies of loan demand (industrial production growth, wage growth, and unemployment) and loan supply (bank soundness), and real interest rates.[12] Bank soundness is measured by the share of nonperforming loans in total outstanding loans, and distance to default (Box 1) is used for a robustness check. The model is estimated using the ordinary least squares on a sample from January 1998 to December 2005. Parsimonious specifications of the model are obtained using general-to-specific modeling, starting with 12 lags for all explanatory variables and sequentially eliminating statistically insignificant variables, while ensuring that reduced specifications encompass preceding specifications.

33. **Both demand- and supply-side variables are found to be significant determinants of credit growth in Poland** (Table 1). Overall, demand-side factors seem to have been more important than supply-side factors in driving credit growth in Poland. The signs of coefficients in the long-run static solution of the model are generally in line with expectations. Higher household credit growth is found to be associated with higher industrial production, lower real interest rates, and stronger bank balance sheets. The unemployment rate and real wage growth seem to be less significant determinants of household credit growth than the above variables. In the model of corporate credit growth, lower wages, unemployment and real interest rates and stronger bank balance sheets are found to stimulate credit growth. Corporate credit growth is negatively correlated with industrial production growth, possibly reflecting the fact that strong retained earnings in recent years have enabled corporates to finance themselves internally.

34. **The econometric results confirm the procyclicality of both the demand and supply of credit in Poland**. During 1998–2005, loan demand seems to have declined as the economic activity slowed down. Bank loan supply also declined, as loan defaults weakened banks' balance sheets and reduced banks' willingness to lend. The finding that supply-side factors contributed to a slowdown in private sector loan growth is generally robust using distance to default as a measure of bank soundness. It is also consistent with recent literature, which shows how weaknesses in bank balance sheets can reduce bank loan supply not only in crisis but in normal times as well (Dell'Ariccia, Detragiache, and Rajan, 2005; and Nier and Zicchino, 2006).

[12] Including other macroeconomic variables does not significantly improve the specification.

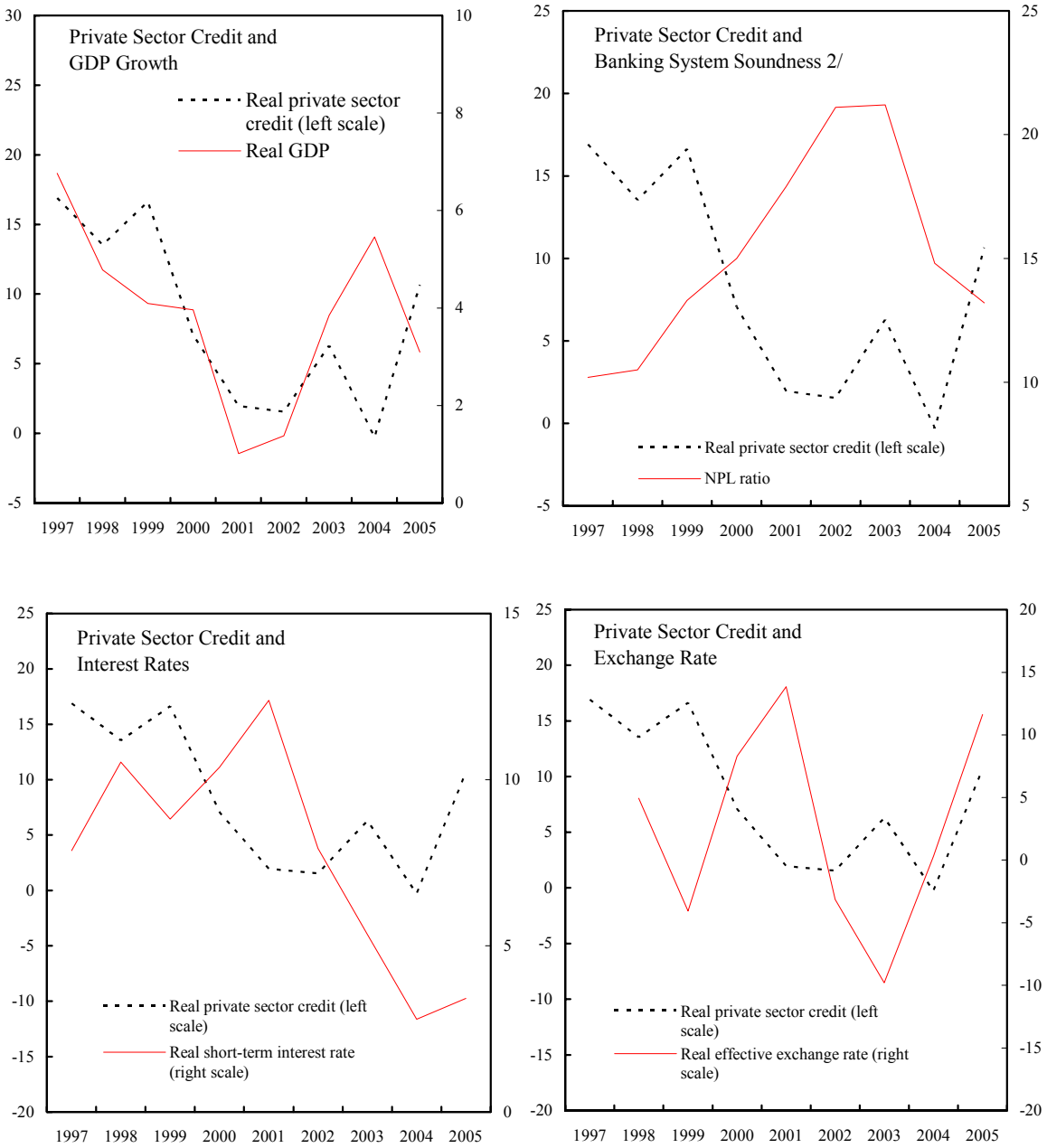
Box 1. Distance to Default as a Summary Measure of Bank Soundness

Distance to default (DD) has become an increasingly popular measure of bank soundness (see, for example, Danmarks Nationalbank, 2004; and De Nicoló and others, 2005). Its popularity stems from the fact that it is directly related to the probability of default, that is the probability that the value of assets becomes smaller than the value of debt. It can be summarized as $DD \equiv (k+\mu)/\sigma$, where k is equity capital as percent of assets, μ is average return as percent on assets, and σ is the standard deviation of return on assets as a proxy for return volatility. DD measures the number of standard deviations a return realization has to fall in order to deplete equity, under the assumption of normality of banks' returns. Because a higher DD corresponds to a lower upper bound of insolvency risk, a higher DD therefore implies a lower probability of insolvency risk.

Typically, market values of equity are used to calculate this index (see, for example, De Nicoló and others, 2005). In particular, daily market data on equity are combined with annual accounting data to calculate the market value and the volatility of assets, based on the option-pricing model by Black and Scholes (1973) and Merton (1974). Advantages of using stock market data include the fact that they aggregate information dispersed among market agents and potentially can provide forward-looking assessments of risks. However, this approach is also based on relatively strong assumptions; in particular, it requires bank stocks to be traded in well-functioning and liquid markets.

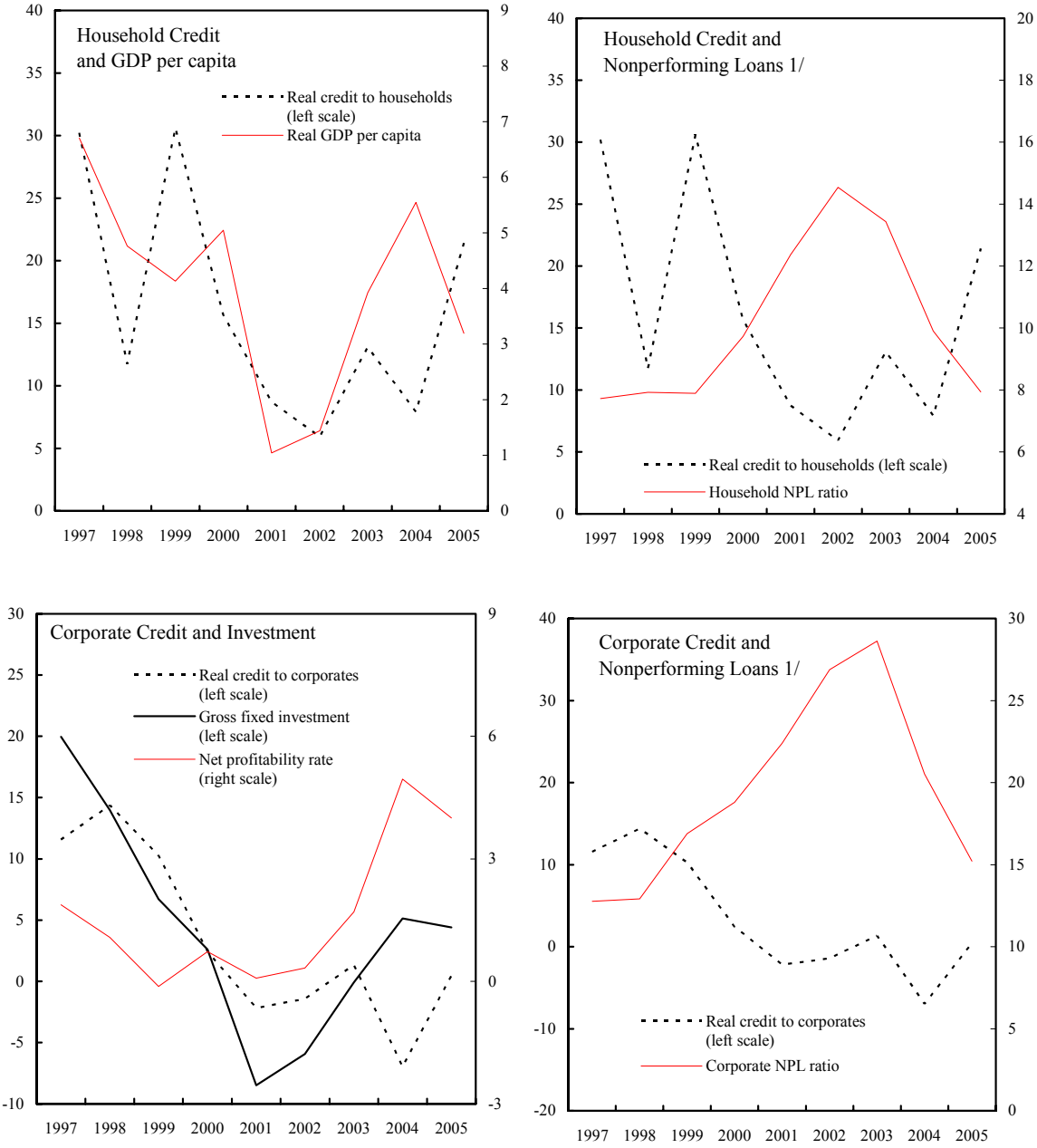
Since this assumption might not hold in relatively illiquid NMS stock markets, this paper mainly uses a simpler annual measure of DD based only on balance sheet and income statement data (also known as z-score; for example, Maechler, Mitra, and Worrell, 2006). DD is calculated using annual data on equity capital and return on assets. The standard deviation of returns is calculated for the entire sample period to obtain a sufficiently long-term view on the risks faced by a given bank. DD measure should be robust to changes in loan classification rules introduced in Poland in 2004. Only in the econometric analysis based on monthly aggregate credit data (Section B), the paper uses DD measure calculated by combining accounting data with stock market data (in the way suggested by De Nicoló and others, 2005).

Figure 3. Poland: Private Sector Credit and Macroeconomic Environment, 1997-2005 1/
(Annual percent change, unless indicated otherwise)



Sources: National Bank of Poland; Polish Statistical Office; and IMF staff estimates.
1/ LHS indicates left-hand scale, and RHS indicates right-hand scale.
2/ NPL ratio is the share of nonperforming loans in total loans.

Figure 4. Poland: Demand and Supply Factors Driving Private Sector Credit, 1997-2005 1/
(Annual percent change, unless indicated otherwise)



Sources: National Bank of Poland; Polish Statistical Office; and IMF staff estimates.
1/ NPL ratio is the ratio of nonperforming loans to total loans.

Table 1. Poland: Modeling Growth of Credit to the Private Sector

Household Credit Growth			Corporate Credit Growth		
	Coefficient	Probability		Coefficient	Probability
Constant	0.054	0.000	Constant	0.032	0.000
Dtlhr_1	-0.304	0.002	Dtlcr_3	-0.205	0.008
Dtlhr_2	-0.193	0.041	Dtlcr_12	0.489	0.000
Dtlhr_7	-0.105	0.271	Dip_2	-0.103	0.017
Dtlhr_11	-0.140	0.116	Dip_3	-0.105	0.010
Dip_6	0.438	0.000	Dip_8	-0.088	0.031
Dip_7	0.472	0.000	Dip_12	-0.113	0.003
Dip_8	0.181	0.078	Dwr_7	-0.186	0.004
Dwr_7	-0.236	0.088	Dwr_11	-0.267	0.000
DRUP_6	0.016	0.130	DRUP_2	-0.028	0.000
DRUP_9	0.009	0.416	DRPR_4	-0.005	0.003
DRPR_4	-0.009	0.006	DRPR_7	-0.004	0.003
DRPR_10	-0.008	0.010	DRPR_9	0.003	0.024
NPLRT_6	0.015	0.016	NPLRT_11	-0.002	0.000
NPLRT_7	-0.046	0.000			
NPLRT_8	0.033	0.001			
NPLRT_11	-0.018	0.020			
NPLRT_12	0.014	0.027			
Adjusted R-squared		0.43	Adjusted R-squared		0.58
Observations		96	Observations		96
		Specification Tests			
	Statistic	Probability		Statistic	Probability
Chow test	1.328	0.239	Chow test	0.564	0.822
Autocorrelation test 1	0.860	0.492	Autocorrelation test 1	0.331	0.857
Autocorrelation test 2	0.846	0.501	Autocorrelation test 2	0.985	0.421
Heteroskedasticity test	0.828	0.713	Heteroskedasticity test	0.867	0.647
		Long-Run Static Solution			
	Statistic	Probability		Statistic	Probability
Dip	0.626	0.000	Dip	-0.572	0.000
Dwr	-0.135	0.097	Dwr	-0.632	0.000
DRUP	0.014	0.093	DRUP	-0.039	0.000
DRPR	-0.010	0.001	DRPR	-0.009	0.015
NPLRT	-0.001	0.000	NPLRT	-0.002	0.000
Constant	0.031	0.000	Constant	0.045	0.000

Source: IMF staff estimates.

Notes: The dependent variable is the monthly percent change in real credit to households (Dtlhr) or nonfinancial corporations (Dtlcr). Explanatory variables, all seasonally adjusted, include the monthly percent change in industrial production (Dip) and real average gross wages (Dwr), and the month-on-month change in the unemployment rate (DRUP) and the real policy rate (DRPR), and nonperforming loans as a share of total household or corporate loans (NPLRT). "D" denotes a one-period difference, and lower case letters indicate logarithms. The model was estimated using the ordinary least squares on a sample from January 1998 to December 2005. Parsimonious dynamic models were obtained using general-to-specific modeling, starting with 12 lags for all explanatory variables. The long-run solution corresponds to the following equation: Dtlhr or Dtlcr= $\beta 1 + \beta 2*Dip + \beta 3*Dwr + \beta 4*DRUP + \beta 5*DRPR + \beta 6*DNPRT$.

Analysis Based on Bank-Level Data

35. **This section explores the reasons for slow credit growth in Poland by drawing on a cross-country study on credit growth and bank soundness in the NMS**.[13] Using bank-level data, the study identifies the key factors driving credit growth in the region during the last decade and assesses its prudential implications. The econometric analysis is based on a simultaneous equation framework, which takes into account feedback between credit growth and financial stability and enables a joint estimation of their determinants.

36. **The econometric analysis suggests that Poland's credit growth has been "underperforming" in recent years by the NMS's standards**. In the second half of the 1990s credit growth in Poland was consistent with the country's level of income, cyclical position, and banking sector characteristics (the coefficient on the dummy variable identifying Polish banks is statistically insignificant in Table 2, Column 3). In contrast, during 2001–04, credit growth was 14⅔ percentage points per year lower on average than what would be expected, given the structural determinants of credit growth (the coefficient on the Polish bank dummy is negative and statistically significant in Table 2, Column 7).[14]

37. **In recent years, the structural determinants of credit growth included real GDP growth, profitability (proxied by the net interest margin), and real exchange rate changes**. The importance of the level of economic and institutional development, bank efficiency (measured by the cost-to-income ratio), and real interest rates weakened in 2001–04 compared to 1994–2000. During 2001–04, bank soundness seems to have had a positive and statistically significant impact on credit growth in Poland, in contrast to the insignificant impact found in other NMS (Table 2, Column 4). The deterioration in bank balance sheets triggered by the 2001–02 economic slowdown seems to have had a larger impact on credit growth in Poland than in other NMS, possibly because it coincided with the start of restructuring by new foreign owners of several key banks or because it came on the heels of rapid credit expansion in the early 1990s in an environment of weak lending practices.[15]

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[13] See the accompanying multi-country Selected Issues Paper on Export Structure and Credit Growth in the NMS.

[14] Data for an outlier—a rapidly growing but reportedly weak small domestically owned Polish bank—were excluded from the data set. regular loans accounted for about half of this bank's loan portfolio, possibly because, for tax reasons, it has been slow to write off these loans. See the accompanying *Financial System Stability Assessment Update* (FSSA).

[15] NBP, *Summary Evaluation of the Financial Situation of Polish Banks*, various issues.

Table 2. Credit Growth in Poland Compared to Other New Member States, 1995-2004 1/

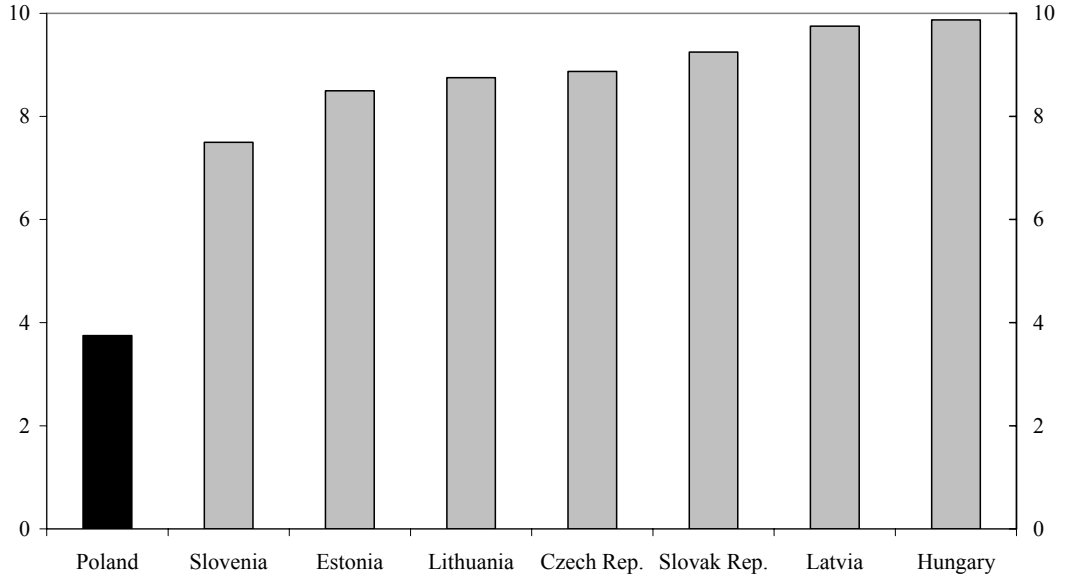
	Full Sample of NMS Banks						Excl. Outlier 2/	
	1995-2004		1995-2000		2001-04		2001-04	
	Equation 1: Bank Credit Growth	Equation 2: Distance to Default	Equation 1: Bank Credit Growth	Equation 2: Distance to Default	Equation 1: Bank Credit Growth	Equation 2: Distance to Default	Equation 1: Bank Credit Growth	Equation 2: Distance to Default
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank credit growth (lagged)	0.091***	-0.002	0.090***	-0.005**	0.089***	0	0.089***	0
	[5.49]	[1.41]	[3.33]	[1.97]	[4.40]	[0.08]	[4.34]	[0.12]
Distance to default (lagged)	0.113	0.897***	0.307	0.851***	0.051	0.931***	0.04	0.941***
	[0.95]	[84.17]	[1.33]	[58.16]	[0.40]	[62.68]	[0.31]	[63.51]
Real GDP growth (lagged)	2.451***		1.811*		2.309***		2.341***	
	[4.85]		[1.90]		[3.56]		[3.60]	
GDP per capita (lagged)	-0.138**	0.013**	-0.387***	0.027***	-0.047	0.003	-0.044	0.002
	[2.23]	[2.10]	[3.57]	[3.42]	[0.60]	[0.31]	[0.56]	[0.19]
Real interest rate (lagged)	-0.548		-1.479**		-0.752		-0.774	
	[1.24]		[2.01]		[1.11]		[1.14]	
Real exchange rate depreciation (lagged)	-3.945		20.022***		-7.234***		-7.232***	
	[1.54]		[3.03]		[2.60]		[2.60]	
Net interest margin (lagged)	0.406		1.016		1.184**		1.159*	
	[0.80]		[1.07]		[1.98]		[1.94]	
Cost-income ratio (lagged)	-0.035*		-0.066***		0.044		0.044	
	[1.91]		[2.79]		[1.45]		[1.44]	
Liquidity ratio (lagged)		0.021**		0.007		0.021**		0.023**
		[2.50]		[0.49]		[2.03]		[2.19]
Foreign ownership		0.006**		0.009**		0.003		0.002
		[2.12]		[2.28]		[0.59]		[0.44]
Distance to default of Polish banks (lagged)	0.547*		0.249		0.880**		1.017**	
	[1.94]		[0.59]		[2.31]		[2.22]	
Polish banks	-8.546	-0.529	-1.239	-0.509	-13.513*	-0.027	-14.673*	-0.222
	[1.57]	[1.47]	[0.15]	[1.13]	[1.66]	[0.05]	[1.74]	[0.42]
Credit growth in Polish banks (lagged)		0.005		0.014***		-0.028***		-0.004
		[1.09]		[2.97]		[2.78]		[0.36]
Bank size (lagged)		0.339***		0.230*		0.353**		0.345**
		[3.48]		[1.95]		[2.36]		[2.35]
Constant	23.880***	-2.433***	32.683***	-2.193***	14.472**	-2.095**	14.503**	-2.094**
	[4.45]	[3.68]	[3.59]	[2.66]	[2.01]	[2.10]	[2.01]	[2.13]
Public ownership	-0.165***		-0.145**		-0.048		-0.05	
	[3.23]		[2.05]		[0.64]		[0.66]	
Number of observations	835	835	378	378	457	457	455	455
R-squared	0.13	0.91	0.16	0.92	0.16	0.90	0.16	0.91

Sources: Bankscope,; IMF's International Financial Statistics; and IMF staff estimates.

1/ The absolute value of z statistics is in brackets. An asterisk * (**, ***) indicates significance at the 10 percent (5 percent, 1 percent) level. The sample covers commercial banks from the new EU member states for which data are available in Bankscope. The dependent variable in the first equation is the annual percent change in outstanding bank loans, deflated using the CPI index. In the second equation, the dependent variable is distance to default (DD), calculated using bank account data. Exogenous variables include annual real GDP growth, GDP per capita in U.S. dollars, real lending interest rates, annual percent change in the real exchange rate of local currency vis-a-vis the U.S. dollar, net interest margin, cost-to-income ratio, liquidity ratio, and bank size (measured by total assets in U.S. dollars), all lagged by one year. The model also includes the shares of bank capital held by foreign institutions and by the government, a dummy variable for Polish banks, and two interaction terms (the annual percentage change in outstanding bank loans multiplied by the dummy for Polish banks and DD multiplied by the dummy for Polish banks). The model is estimated using three-stage least squares.
2/ Excluding data for one small rapidly growing Polish bank with a large share of irregular loans.

38. **One possible reason for slow credit growth in Poland in recent years relates to weaknesses in the enforcement of pledges and collateral**. According to the European Bank for Reconstruction and Development, Poland scores the worst among NMS on the process aspects relating to the enforcement of pledges and collateral: (i) time, amount, and simplicity of enforcement; (ii) debtor obstruction, that is, the possibility for the debtor to obstruct the enforcement proceedings to the detriment of the chargeholder; (iii) creditor control, that is, the ability of the creditor to control or influence the conduct of the enforcement procedure; and (iv) institutions, that is, the reliability of courts and other institutions necessary to support the enforcement process.[16] Weaknesses in the enforcement of pledges and collateral are likely to weigh on banks' willingness to lend, reducing loan growth and the pace of financial deepening. In addition, reported difficulties in collecting accurate information about prospective corporate borrowers, especially small and medium-size enterprises, might have discouraged credit growth in Poland.[17]

New Member States: Enforcement of Pledges and Collateral 1/
(Average score for time, amount, and simplicity)



Source: European Bank for Reconstruction and Development.
1/ Ratings for each dimension range from 0 (worst) to 10 (best).

[16] EBRD (2005). See also World Bank (2006).

[17] Although progress has been made recently in addressing these obstacles to the provision of private sector credit, there is still considerable room for improvement. For specific policy recommendations on how to strengthen the enforcement of charged assets and to improve the operation of credit bureaus, see the accompanying FSSA.

39. **Unless the institutional impediments to credit growth are addressed, Poland risks falling behind not only in financial development but also in broader economic performance**. To the extent that slow credit growth in Poland reflected cyclical factors, it can be expected to pick up as the economy recovers. Indeed, recent loan statistics and senior loans officers' surveys point to strengthening demand for corporate and household credit. However, if, even during an economic upturn, credit growth remained below the level consistent with structural determinants, this would raise concerns about the implications for long-run economic growth. Recent literature suggests that financial development is crucial for fostering economic growth (King and Levine, 1993; and Rajan and Zingales, 1998). Such growth-enhancing benefits are likely to be particularly relevant for countries like Poland, where credit markets seem to be underdeveloped relative to other economies with similar levels of income, reflecting the legacy of central planning (Coricelli and Masten, 2005).

C. Is Rapid Growth of Foreign Currency Housing Lending a Concern for Financial Stability?

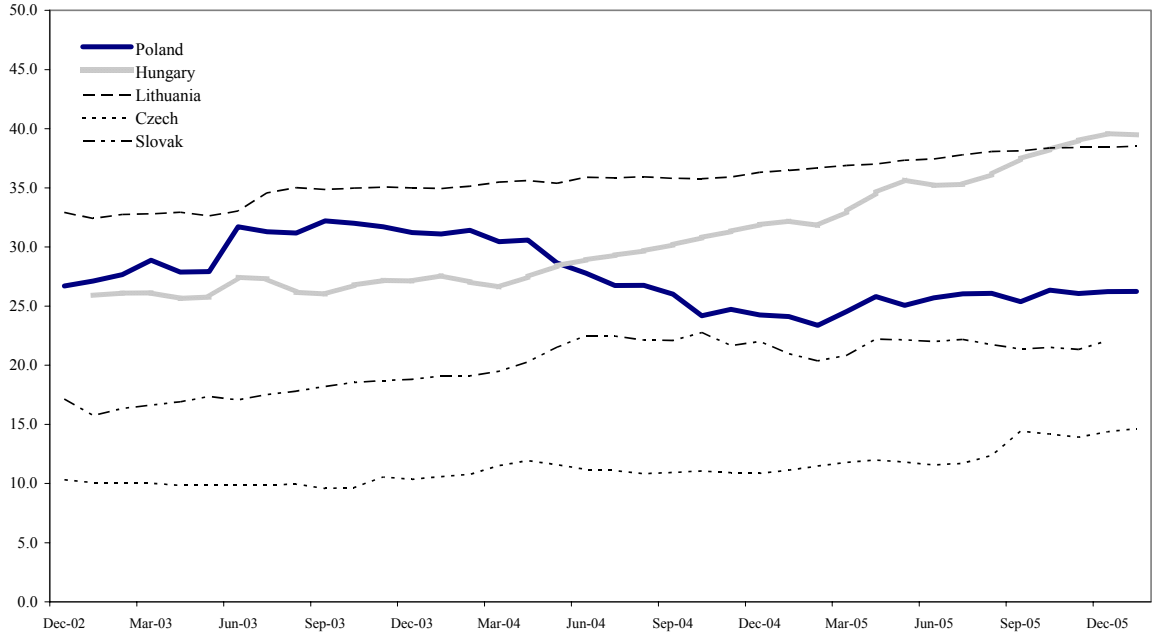
Background

40. **Against the backdrop of slow overall credit growth, housing loans were the fastest growing component of private sector credit in the last decade**. During the last four years, housing loans grew at an average rate of 40 percent per year. High demand for flats and houses in an environment of falling interest rates fueled housing credit, even as the growth of employment and disposable income was sluggish. One-off effects of EU accession also contributed, particularly an announcement about forthcoming VAT hikes for construction materials and expectations of rising property prices in the wake of EU accession. As new banks entered the market and bank competition intensified, banks started to offer special promotions on household loans, which also helped stimulate demand.

41. **Foreign currency loans dominate lending for housing purposes**. While the share of foreign currency-denominated or indexed loans in *total* loans in Poland is not high by regional comparison (25 percent at end-2005) and has been declining in recent years, about 64 percent of *housing* loans were indexed to or denominated in foreign currency at end-2005—significantly more than in other NMS and one of the highest percentages in the EU. Borrowing in foreign currency for housing purposes has been attractive for households, given the still significant interest rate differential between zloty and foreign currency-indexed loans, widely held expectations of continued zloty appreciation, and the long-term maturity of housing loans (up to 30 years).[18] Most housing loans are at variable interest rates.

[18] In recent years, the Swiss franc has become a currency of choice for housing loans, because Swiss franc loans carry the lowest interest rate among foreign currency loans. Typical mortgage loan amounts are still relatively low, roughly zloty 70,000–200,000 (US$25,000–75,000 or 2.0–5.5 times GDP per capita). Based on partial information, initial loan-to-value ratios (LTV) tend to be around 70 percent–85 percent.

Selected New Member States: Foreign Currency-Denominated and Indexed Loans to the Private Sector
(In percent of total loans)



Sources: National central banks; and IMF staff estimates.

Analysis of Risks Associated with Foreign Currency Housing Lending

Overview

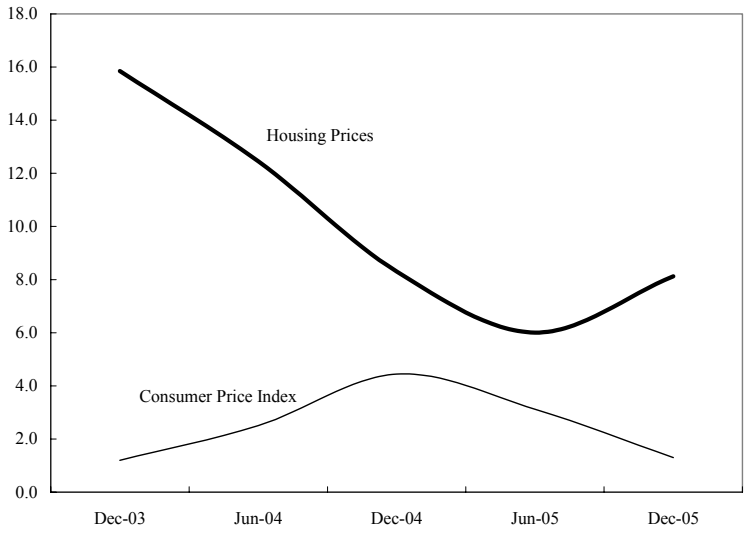
42. **Rapid growth of foreign currency housing loans raises concerns about banks' exposure to indirect exchange rate risk**. Households are typically unhedged, which makes them vulnerable, should the zloty significantly depreciate.[19] The customer base for housing loans might also be changing: after several years of double-digit growth, foreign currency housing loans might be increasingly extended to individuals with lower income levels than in the past. A potential warning sign is a rising share of housing loans classified as satisfactory but repaid with a delay (up to 3 months), which supervisors are monitoring carefully. It is also possible that risk management practices in individual banks that are most aggressively engaged in foreign currency mortgage lending have weakened in a highly competitive environment. Another reason for concern is that in a country like Poland, with a short credit history, the institutional systems for the enforcement of collateral have been largely untested. The EBRD's recent assessment of these systems does not provide comfort that in the event of a large shock banks would be able to recover a significant portion of housing assets quickly (EBRD, 2005).

[19] However, borrowers using *zloty*-denominated loans would also be vulnerable, if a large depreciation is accompanied by a significant increase in interest rates.

43. **Yet, several considerations provide some comfort about the degree of exchange rate-related credit risks**. First, market penetration is still low—outstanding mortgage loans accounted for about 6 percent of GDP in mid-2006, covering about 3 percent of the population. Borrowing in foreign currency for housing purposes is reportedly concentrated in the upper middle income group. Income eligibility requirements for foreign currency loans are typically higher than for zloty-denominated loans, resulting in a buffer of up to 20 percent depreciation. Asset quality indicators for foreign currency housing loans have so far been better than those for zloty-denominated loans and total household loans. Lastly, housing loan contracts typically allow individuals to change the currency denomination of loans freely during the loan period, which gives borrowers an opportunity to offload exchange rate risks if they expect the zloty to depreciate. (These provisions are unlikely to provide a "safety valve" in the event of a sharp unexpected depreciation.)

44. **Based on available data, the risk of a decline in housing prices does not appear excessive**. Data on nationwide real estate developments in Poland are sketchy. In particular, the time series of secondary market data are available only for the Warsaw agglomeration and only since 2002. Broader data are available only as snapshots for selected periods. Primary market data and other proxies (for example, rents) are available for longer time periods.[20] Based on these partial data, it appears that housing prices have increased steadily since 2000, partly reflecting housing shortages against the backdrop of rising incomes. During 2003–05, the growth of housing prices slowed, but, as expected, it remained above consumer price inflation. Recent housing price growth in Poland was not excessive by comparison with other EU countries. The annual growth rates of housing prices in 2004–05 in Poland were only marginally higher than the EU-15 average and below growth rates in France, Ireland, and Spain, for example.[21]

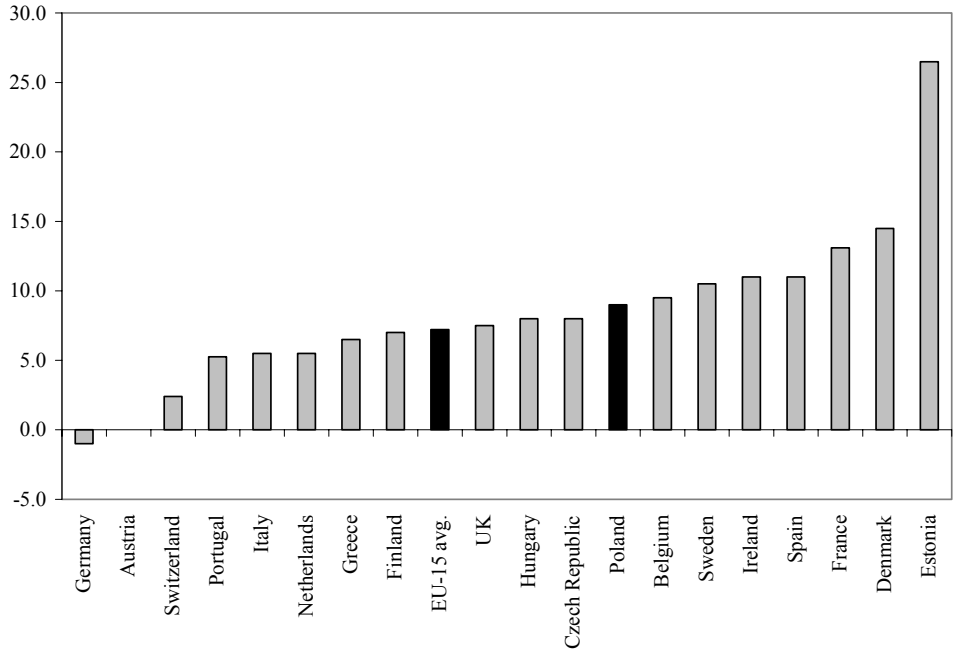
Poland: Housing Prices, 2003-05
(Annual percent change)



Sources: National Bank of Poland; Polish Statistical Office; and IMF staff estimates.

[20] Data limitations hindered stress testing for housing price risks in the FSAP Update.

Selected European Countries: Housing Prices, 2004-05
(Annual percent change)



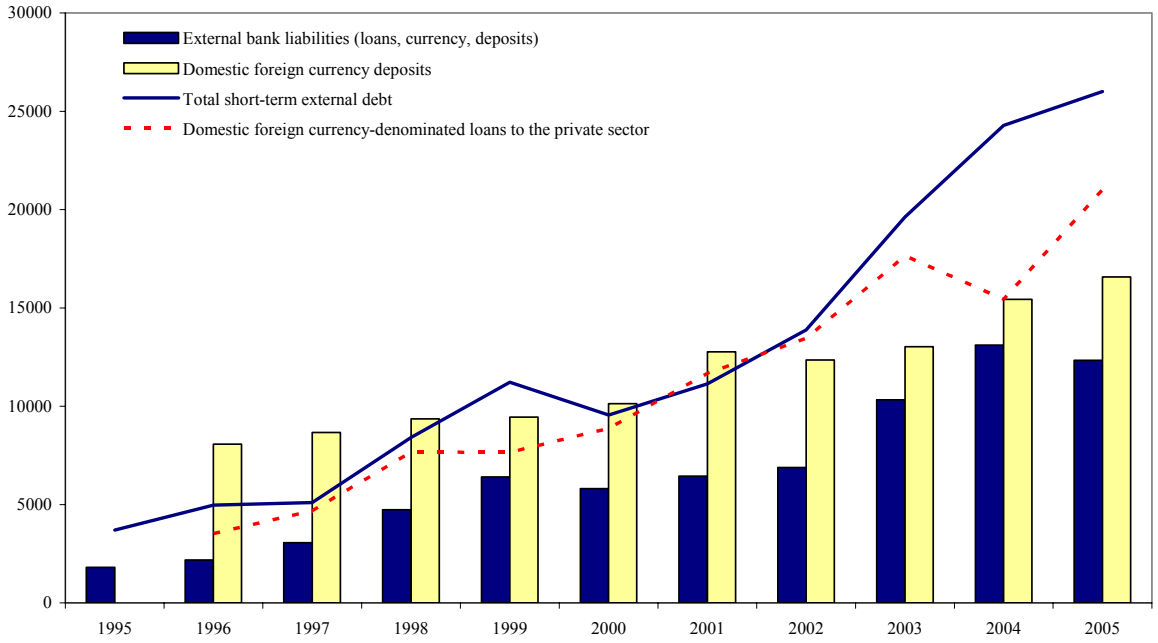
Sources: Royal Institute of Chartered Surveyors (United Kingdom); and IMF staff estimates.

45. **Liquidity risks also seem to be under control, although close monitoring of foreign currency liquidity needs to continue**. For the system as a whole, deposits taken from customers exceed loans granted to customers. At the level of individual banks, however, there are substantial differences, and most small banks have to rely on additional sources of funding than customer deposits. Liquid assets have been rising in proportion to total assets, and have recently exceeded liabilities toward the financial sector, the least stable funding source. An important part of total liquidity is foreign currency liquidity, with short-term foreign currency claims constituting about one third of liquid assets. Foreign currency liquidity has been rising in recent years, as banks have increased short-term external borrowing in tandem with domestic foreign currency lending. According to the NBP, banks have so far been able to obtain foreign currency liquidity through transactions in the foreign exchange swap market without incurring excessive costs (NBP, 2005). Nonetheless, foreign currency liquidity should continue to be closely monitored, especially since banks tend to hedge the direct exchange rate risk from the rapidly growing foreign currency mortgages using short-term foreign currency swaps.

[21] Nonetheless, the collateral risk should not be discounted, given the identified problems with the enforcement of collateral rights (EBRD, 2005).

46. **Next, this section examines how significant credit risks associated with housing lending are and how resilient the banking system is to these risks in more detail, using a variety of analytical approaches and data**. The section reviews aggregate indicators for the household sector, financial soundness indicators for Polish banks, and stress testing results. It also undertakes the econometric analyses of credit risk and bank soundness in the country-specific and regional contexts.

Short-Term External Borrowing and Domestic Foreign Currency Lending, 1995-2005
(In millions of U.S. dollars)

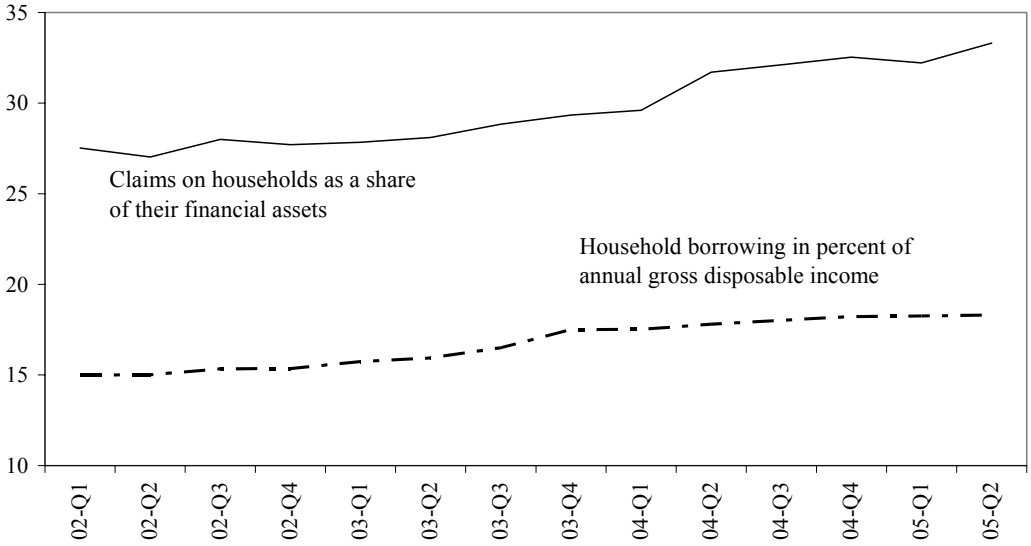


Sources: National Bank of Poland; Polish Statistical Office; and IMF staff estimates.

The balance sheet of the household sector

47. **Aggregate household debt burden seems manageable**. Household indebtedness has been gradually rising from a low base and, at about 15 percent of GDP in 2005, does not seem excessive by cross-country standards. In 2005, household borrowing corresponded to 21 percent of annual gross disposable income and 36 percent of households' financial assets. Households' debt service ratio was 16 percent of disposable income. However, these indicators refer to the household sector as a whole and, hence, should be taken with caution: they might mask pockets of vulnerabilities, for example, in low income groups of households or small- and medium-size enterprise. Disaggregated data on household balance sheets are, unfortunately, not readily available.

Poland: Household Indebtedness, 2002-05
(In percent)



Source: Polish Statistical Office; and IMF staff estimates.

48. **Aggregate currency mismatches in household balance sheets also do not appear excessive**.[22] Households are unlikely to be able to borrow directly from nonresidents, and, hence, their external currency mismatches can be assumed to be negligible. Assuming conservatively that domestic foreign currency liabilities of households are unhedged and are not matched by their foreign currency assets,[23] outstanding foreign currency liabilities of households to domestic banks can be used as a proxy for total currency mismatches in the balance sheet of the household sector. Foreign currency liabilities of households have risen from less than ½ percent of GDP in 1996 to about 4 percent of GDP in 2005. As of now, the magnitude of the mismatch does not appear alarming (a 30 percent depreciation would raise it to 5½ percent of GDP), but needs to be monitored. As domestic interest rates converge further to the euro area levels, the interest rate differential on zloty- and foreign-currency-denominated loans should narrow, stabilizing currency mismatches.[24]

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[22] The analysis of balance sheet mismatches in the nonfinancial private sector is constrained by the lack of data on foreign currency assets of households, and the lack of subsectoral breakdowns for the nonfinancial private sector in the international investment position data.

[23] Like in other NMS, households in Poland are likely to hold their wealth mostly in zloty-denominated nonfinancial assets (particularly, real estate). Most households are unlikely to be able to cover their exchange rate exposure through natural hedges, although some households might receive foreign currency-denominated remittances from members working abroad.

[24] The above analysis was constrained by data limitations. One would need to compile a full national balance sheet to get a complete picture of sectoral mismatches and inter-sectoral linkages.

Financial soundness indicators and stress tests

49. **Macroprudential indicators suggest that the banking system is sound, liquid, profitable, and well capitalized**. Following a temporary deterioration in 2002–03, financial soundness indicators (FSIs) have been improving steadily in recent years and are broadly in line with those for its regional peers (Table 3).[25] However, a regional comparison of an aggregate measure of bank soundness, distance to default, implies that the soundness of Polish banks has on average lagged behind banks in other central and eastern European countries (CEECs) and the Baltics in recent years. At the same time, the dispersion of distance to default in Poland has been the lowest among the NMS, however, implying greater homogeneity of bank soundness indicators than in other NMS.

Table 3. Poland: Financial Soundness Indicators for the Banking Sector, 1998-2005
(In percent)

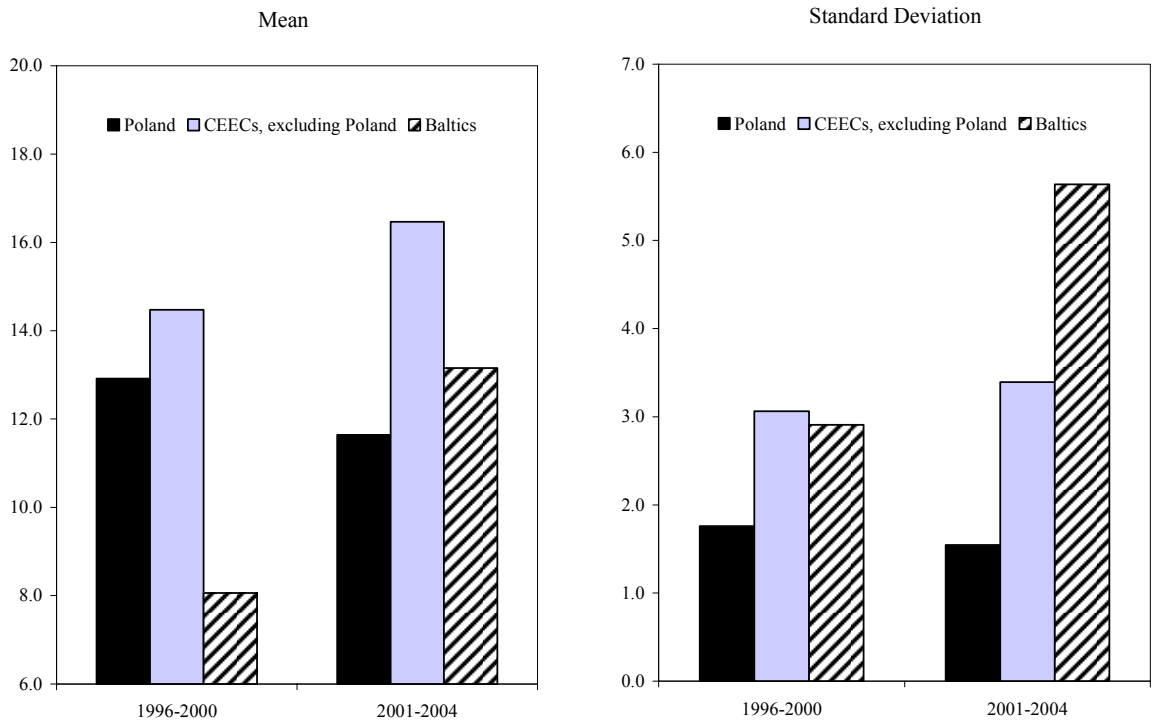
	1998	1999	2000	2001	2002	2003	2004	2005
Capital adequacy								
Regulatory capital to risk-weighted assets	11.7	13.1	12.9	13.5	14.2	13.8	15.4	14.5
Regulatory Tier I capital to risk-weighted assets 1/	14.0	14.7	14.1	14.1	14.2	13.9	15.3	14.4
Capital to assets	7.0	7.1	7.2	8.0	8.7	8.3	8.0	7.8
Classified loans net of provisions to capital 2/	33.2	54.3	59.4	58.9	63.6	68.7	36.8	21.4
Nonperforming loans net of provisions to capital 3/	...	...	...	...	...	31.1	22.5	11.9
Asset composition and quality								
Classified loans to gross loans 2/	10.5	13.3	15.0	17.9	21.1	21.2	14.9	11.0
Nonperforming loans to gross loans 3/	...	...	...	...	...	10.4	9.2	7.7
Sectoral distribution of loans to total loans								
Loan to households 4/	33.8	37.0	39.7	42.4	41.4	43.7	48.0	52.3
Loans to non-financial corporations 4/	66.2	63.0	60.3	57.6	58.6	56.3	52.0	47.7
Earnings and profitability								
Return on average assets (after-tax)	0.6	0.9	1.1	0.9	0.5	0.5	1.4	1.6
Return on average equity (after-tax)	9.1	13.2	15.4	12.4	6.1	5.8	17.1	20.7
Interest margin to gross income 5/	70.3	63.7	60.8	53.3	54.4	55.7	56.4	57.7
Non-interest income (net) to gross income 6/	29.7	36.3	39.2	46.7	45.6	44.3	43.6	42.3
Noninterest expenses to gross income 7/	68.0	70.1	67.9	68.6	71.5	78.9	77.1	72.3
Liquidity								
Liquid assets to total assets (liquid assets ratio) 8/	28.8	15.6	17.0	17.8	24.1	26.1	26.2	26.2
Liquid assets to borrowed funds 8/	32.7	17.7	19.2	20.2	27.4	29.5	29.8	29.6
Sensitivity to market risk								
Net open positions in foreign exchange to capital	...	-1.5	5.3	2.1	1.1	0.3	1.5	2.5

Source: National Bank of Poland.

1/ Tier 1 capital consists of core capital reduced by a shortfall in specific / impairment provisions.
2/ The definition of classified loans was changed in 2004.
3/ Nonperforming loans defined as arrears over 90 days.
4/ The definition of the sectors changed in 2002.
5/ No deductions of income from other deposit takers.
6/ No deductions of expenses paid to other deposit takers.
7/ Noninterest expenses comprise fees and commission costs, other operating costs, depreciation, personnel costs, and other general expenses.
8/ Liquid assets comprise cash, balances at the NBP accounts, placements at banks maturing in up to 1 month, debt securities admitted to public trading, and units in open-ended investment funds. Borrowed funds are all liabilities other than provisions, capital, and earnings.

[25] A historically large stock of irregular loans in Poland partly reflects strict loan classification rules, which until 2004 were based on the 30 day rule rather than the 90 day rule, which is more common across the world.

New Members States: Distance to Default of Commercial Banks, 1996–2004 1/



Source: Bankscope; IMF staff estimates.
1/ Distance to default measures the number of standard deviations a return realization would have to fall for equity to be depleted (see Box 1 for more details). The Central and Eastern European countries include the Czech Republic, Hungary, Poland, Slovak Republic, and Slovenia. The Baltic countries include Estonia, Latvia, and Lithuania.

50. **Market indicators for Polish banks are also generally positive, but ratings are lagging behind some CEEC peers**. Polish banking stock prices have grown rapidly in recent years, faster than the general Polish stock market index.[26] Fitch's Banking System Indicator (BSI) ranks Poland the same as Hungary, Latvia, Lithuania, and the Slovak Republic, but below the Czech Republic, Estonia, and Slovenia.[27] Financial strength ratings by Moody's are lower for Polish banks than for their CEEC peers, in line with the distance-to-default measures.

51. **Stress tests carried out by the Polish authorities during the FSAP Update suggested that Polish banks would be able to withstand a major increase in credit risk associated with housing loans**.[28] The most relevant stress tests in an environment of rapid

[26] For example, at the Warsaw Stock Exchange, the WIG-Banking index has increased on average by 32 percent per annum between end-1998 and mid-2006, compared with about 23 percent for the WIG general index.

[27] See Fitch Ratings (2005a, c) and Moody's Investor Service (2005). The BSI measures intrinsic bank systemic risk on a scale of A (very high quality) to E (very low quality). Poland's BSI ranking is D (low quality).

[28] For more details, see the accompanying FSSA.

credit growth are those based on satisfactory and special mention loans, as any worsening in the new loans will be first seen in these categories. If about one fifth of loans classified as satisfactory and special mention were to migrate to doubtful (a major shock, compared to historical experiences), capital adequacy ratios would drop to 8 percent in banks with assets representing about one fifth of total banking sector assets. If 10 percent of performing foreign currency loans to households became classified, banking sector capital would decline only by about 2 percent, and all banks would remain solvent. The results of interbank contagion stress tests suggest that contagion through the interbank market currently does not present a systemic risk: a random failure of a bank is expected to result in only very small losses as a percent of total banking system assets.[29]

Poland-specific econometric modeling of credit risk

52. **An econometric model of default risk using aggregate data for Poland suggests that the exchange-rate related credit risk is currently low** (Table 4). The regression models default risk on corporate and household loans (measured as the share of nonperforming loans in total outstanding corporate or household loans) as a function of various macroeconomic variables, such as industrial production, real wages, unemployment rate, real effective exchange rate, and real interest rates. The results show that credit risk in the household sector is *negatively* correlated with exchange rate depreciation, possibly because, in the event of exchange rate depreciation, the increase in household incomes, reflecting greater competitiveness and higher economic growth, tends to compensate for the increased debt-service payments on foreign currency-indexed loans. Variables proxying economic growth and income indeed seem to be the most important determinants of credit risk relating to household and corporate loans. One caveat for interpreting these results is that the above analysis uses monthly data on classified loans, while Polish banks review their portfolios quarterly.

53. **Another reason for caution is that these results are based on aggregate data, which do not take into account the distribution of risks across banks**. Even if the aggregate risks associated with the rapid growth of foreign currency lending to households seem low, the exposures of individual banks might be significant. The business strategies of foreign-owned banks for foreign currency lending in Poland have differed, in part reflecting differences in their experiences with this type of lending in their home markets (Box 2). Some banks have restricted foreign currency lending through internal policies, while others have aggressively expanded foreign currency lending to gain market shares. The share of foreign currency loans in portfolios of some banks has increased sharply in recent years.[30]

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[29] See the accompanying FSSA.

[30] Fitch Ratings (2005a and 2005c).

Table 4. Modeling the Probability of Default on Corporate and Household Bank Loans in Poland

	Corporates			Households	
	Coefficient	Probability		Coefficient	Probability
DNPLRTC_12	0.45	0.00	DNPLRTH_6	0.27	0.00
Dip_8	-5.08	0.01	DNPLRTH_7	0.33	0.00
Dip_9	-6.15	0.00	DNPLRTH_8	-0.25	0.00
Dip_10	-5.11	0.00	DNPLRTH_9	-0.13	0.12
Dwr_11	8.25	0.00	DNPLRTH_10	0.17	0.05
DRUP_2	0.81	0.00	Dip_1	-1.37	0.13
			Dip_6	-3.65	0.00
			Dip_8	-1.16	0.20
			Dwr_6	-3.46	0.03
			DRUP_3	0.26	0.02
			DRUP_10	0.27	0.02
			DRPR_2	0.06	0.11
			DRPR_8	0.09	0.01
			DRPR_9	0.05	0.13
			Dreer_2	3.51	0.00
			Dreer_7	-3.09	0.01
			Dreer_9	3.43	0.01
Observations	96		Observations	96	
Adjusted R-squared	0.44		Adjusted R-squared	0.51	
Specification tests					
	Statistic	Probability		Statistic	Probability
Chow test:	0.81	0.61	Chow test:	0.89	0.54
AR 1-4 test:	0.33	0.86	AR 1-4 test:	0.20	0.94
ARCH 1-4 test:	0.66	0.62	ARCH 1-4 test:	0.29	0.88
Heteroskedasticity test:	0.51	0.90	Heteroskedasticity test:	1.49	0.11
Static Long-Run Equation 2/					
	Coefficient	Probability		Coefficient	Probability
Dip	-29.51	0.01	Dip	-10.07	0.00
Dwr	14.90	0.00	Dwr	-5.64	0.05
DRUP	1.46	0.00	DRUP	0.87	0.00
DRPR	—	—	DRPR	0.34	0.02
Dreer	—	—	Dreer	6.28	0.10
Sensitivity Analysis				Change in NPL ratio	
	Mean	Stand. Deviation	1 STD Adverse Shock	Corporates	Households
Dip	0.005	0.03	-0.03	0.89	0.31
Dwr	0.004	0.02	0.02	0.33	0.13
DRUP	0.078	0.27	0.34	0.50	0.30
DRPR	-0.079	0.79	0.71	—	0.24
Dreer	0.002	0.02	0.03	—	—

Source: National Bank Poland, Polish Statistical Office, and IMF staff estimates.

1/ The dependent variables are nonperforming loans as a share of total outstanding corporate and household loans, respectively (denoted by NPLRTC and NPLRTH). Explanatory variables include industrial production (ip), real average gross wages (wr), unemployment rate (RUP), real effective exchange rate (reer), and policy rate in real terms (RPR). "D" denotes a one-period difference, and lower case letters indicate logarithms. A positive change in the real effective exchange rate indicates appreciation. The model was estimated using the OLS method on a sample from January 1998 to December 2005. Parsimonious dynamic models for the nonperforming loan ratios were obtained using general-to-specific modeling, starting with 12 lags for all variables.

2/ DNPLRTC or DNPLRTH= $\beta 1 + \beta 2*Dip + \beta 3*Dwr + \beta 4*DRUP + \beta 5*DRPR + \beta 6*Dreer$. Constant is not reported. A dash indicates that the variable is statistically insignificant and is not included in the long-run solution.

Box 2. How Experiences in Home Countries Have Affected Foreign Banks' Strategies for Foreign Currency Mortgage Lending in the NMS

Reflecting different experiences in home countries, Italian-owned banks have generally been more cautious in offering foreign currency mortgages through their CEEC subsidiaries; Austrian banks have been promoting such mortgages aggressively in the CEECs (Fitch, 2005c).

In *Italy*, exchange rate depreciation in the early 1990s wreaked havoc on the country's mortgage market, saddling borrowers with higher loan payments. There were no major bank failures, but banks suffered a serious reputational damage, and have become very averse to mortgage lending in foreign currency.

In *Austria*, experiences with foreign currency mortgage lending have been more positive. Nonetheless, the Financial Sector Stability Assessment (FSSA) for Austria (IMF, 2005a) noted that foreign currency lending by banks to domestic customers is unusually prevalent in Austria, especially for house mortgages, and while the risks are well understood and managed by the banks (and the system is "generally sound and resilient"), many borrowers are not hedged. The report suggested continuing efforts to educate customers and ensure that banks—particularly the smaller ones—further improve their risk management.

Cross-country econometric analysis using bank-level data

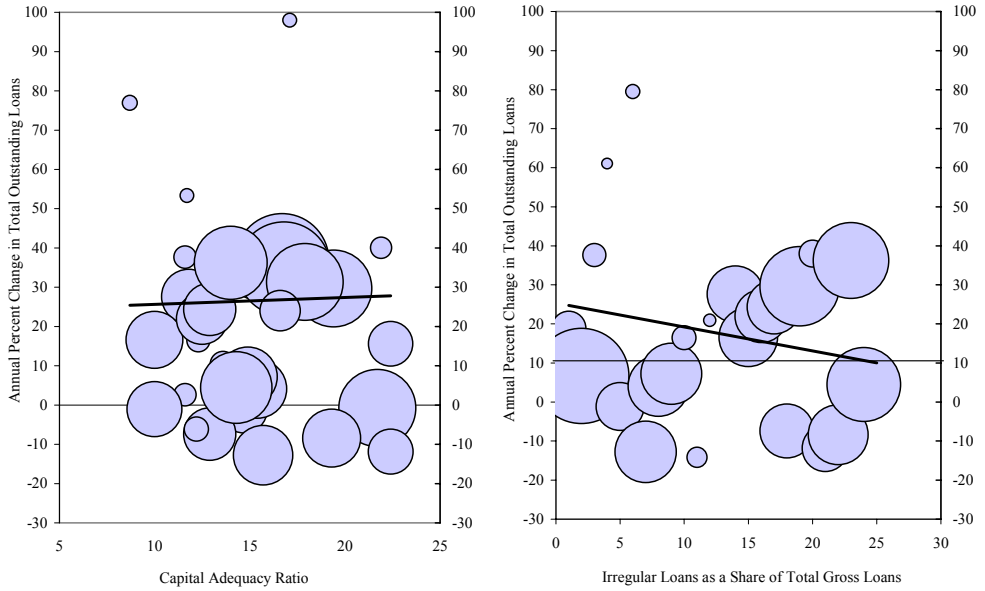
54. **Rapidly expanding foreign currency housing lending does not seem to have come at the expense of financial soundness**. A graphical analysis of publicly available bank-level data on total outstanding loans suggests that rapidly expanding Polish banks are financially sound.[31] Although there does not seem to be a strong relationship between credit growth and capital adequacy at the individual bank level, credit growth in banks with a high share of irregular loans has been slow. Plotting distance to default vis-à-vis bank credit growth also does not suggest that rapid credit growth has been associated with weaknesses in individual banks.[32] A similar analysis using detailed supervisory data on foreign currency lending by all Polish banks was conducted by the Polish authorities during the FSAP Update. It rendered

[31] These bank-level data are from the Bankscope database, which provides balance sheet and income account data for about 60 percent of all commercial banks, accounting for about 85 percent of total banking system assets. The data set comprises large, medium, and small banks; and domestically and foreign-owned banks, and, hence, is fairly representative.

[32] There is one exception (not shown in the chart): a small domestically owned bank, which has been expanding its loan portfolio rapidly, even though irregular loans account for about half of its loan portfolio. The bank might have been slow to write off these loans because of tax reasons (see the accompanying FSSA for more details).

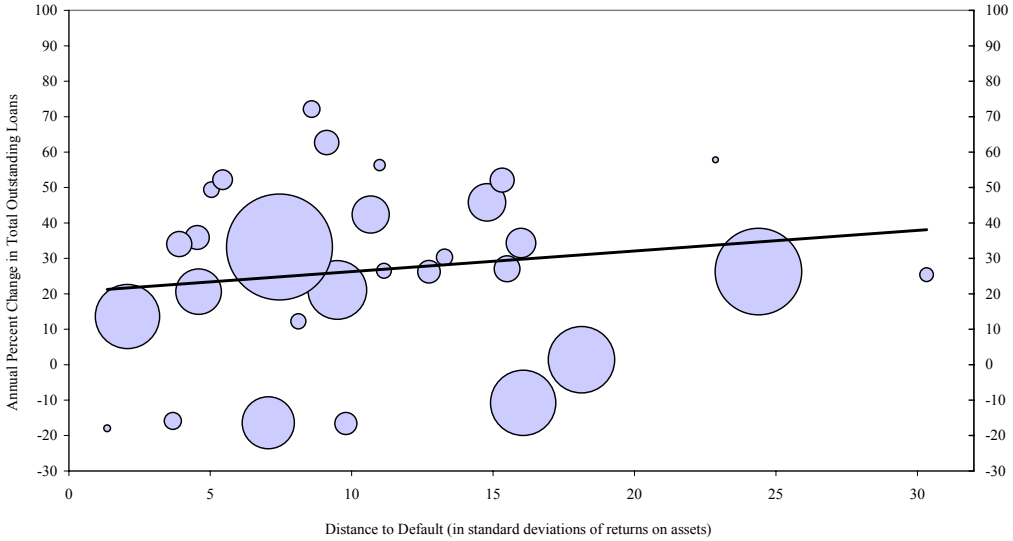
similar conclusions: banks actively engaged in foreign currency lending are well capitalized and sound. A small negative correlation was found between measures of foreign currency lending (the share of foreign currency loans in bank loan portfolio and the annual percent change in foreign currency loans) and measures of bank soundness (distance to default and the capital-adequacy ratio), but this correlation was statistically insignificant.

Poland: Bank Credit Growth, Capital Adequacy, and Irregular Loans 1/
(In percent)



Sources: Bankscope; and IMF staff estimates.
1/ Data refer to 2005 or 2004, depending on data availability for individual banks. Each bubble represents a banking institution, and the bubble size reflects the bank's total assets in U.S. dollars. The black line indicates a linear trend.

Poland: Bank Credit Growth and Distance to Default, 2004



Sources: Bankscope; and IMF staff estimates.
1/ Data refer to 2004. Each bubble represents a banking institution, and the bubble size reflects the bank's total assets in U.S. dollars. The black line indicates a linear trend.

55. **The cross-country econometric analysis using publicly available bank-level data for the NMS shows that, in Poland, stronger banks have been expanding more rapidly in recent years and credit growth has not had any apparent negative effect on bank soundness**.[33] The coefficient on distance to default in the equation for bank credit growth in Poland was positive and statistically significant between 2001–04, in contrast to other NMS, where rapid credit growth seems to have become broad-based and independent of bank soundness during that period (Table 2, Column 7). Like in other NMS, recent credit growth in Poland does not seem to have weakened banks (Table 2, Column 8). These results are robust using the sample of Polish banks only. The soundness of Polish banks in recent years has been positively correlated with economic growth, real interest rates, bank profitability and liquidity, and negatively correlated with the level of economic and institutional development (proxied by GDP per capita); exchange rate depreciation does not seem to have had any significant impact on bank soundness in recent years (Table 5, Column 2).

56. **Financial risks in banks with large and rapidly expanding foreign currency loan portfolios do not seem statistically different from those in other banks**: loan growth in banks with large and rapidly growing foreign currency loan portfolios seems to have been positive correlated with bank soundness (that is, sounder banks are expanding at a faster rate) (Table 5, Column 3), and loan growth in such banks has not had any identifiable effect on bank soundness so far (Table 5, Column 4). The same result holds for banks with large and rapidly growing household loan portfolios (Table 5, Columns 5–6). There is one difference, however: banks with large and rapidly growing *household* loan portfolios seem to be generally weaker than other Polish banks (the coefficient on the dummy variable identifying such banks is negative and statistically significant in Table 5, Column 6), while banks with large and rapidly growing *foreign currency* loan portfolios seem to be just as sound as other Polish banks (the coefficient on the dummy variable identifying such banks is statistically insignificant in Table 5, Column 4). This finding implies that banks with large and rapidly growing household credit exposures require close supervisory attention independent of the currency of their loan denomination.

[33] For more details on the study, see the accompanying multi-country Selected Issues Paper on Export Structure and Credit Growth in the NMS.

Table 5. Modeling Credit Growth and Bank Soundness in Poland, 2001-04

	Total Credit		Foreign Currency Credit		Household Credit	
	Equation 1: Bank Credit Growth	Equation 2: Distance to Default	Equation 1: Bank Credit Growth	Equation 2: Distance to Default	Equation 1: Bank Credit Growth	Equation 2: Distance to Default
	(1)	(2)	(3)	(4)	(5)	(6)
Bank credit growth (lagged)	0.142**	-0.007	0.121*	-0.013	0.149**	-0.008
	[2.03]	[0.82]	[1.80]	[1.49]	[2.43]	[1.03]
Distance to default (lagged)	1.137***	0.868***	1.429***	0.914***	1.423***	0.906***
	[3.48]	[21.60]	[4.08]	[20.87]	[4.17]	[21.26]
Distance to default of banks with large and rapidly growing FX loans (lagged)			24.172			
			[0.91]			
Distance to default of banks with large and rapidly growing household loans (lagged)					0.282	
					[0.05]	
Real GDP growth (lagged)	4.142	1.590**	3.342	0.575	6.198	0.985
	[0.66]	[2.06]	[0.52]	[0.72]	[1.05]	[1.34]
GDP per capita (lagged)	-0.322	-0.224**	-0.499	-0.154	-0.661	-0.178*
	[0.40]	[2.26]	[0.63]	[1.54]	[0.88]	[1.91]
Real interest rate (lagged)	-0.321	0.961**	-0.936	0.244	1.412	0.613
	[0.08]	[1.97]	[0.23]	[0.47]	[0.38]	[1.33]
Real exchange rate depreciation (lagged)	-23.528	-2.121	-13.606	-6.526**	-1.479	-4.001
	[1.03]	[0.75]	[0.60]	[2.30]	[0.07]	[1.53]
Net interest margin (lagged)	3.233***	0.248**	5.887***	0.545***	3.411***	0.251**
	[3.31]	[2.06]	[3.70]	[2.74]	[3.79]	[2.22]
Cost-to-income ratio (lagged)	-0.001	0.013	0.046	0.031**	-0.003	0.022*
	[0.01]	[1.03]	[0.46]	[2.50]	[0.04]	[1.91]
Liquidity ratio (lagged)	-0.442**	0.095***	-0.508**	0.075***	-0.515**	0.068**
	[1.99]	[3.48]	[2.37]	[2.81]	[2.41]	[2.52]
Foreign ownership	0.083	-0.011	0.114*	0.003	0.077	-0.001
	[1.39]	[1.49]	[1.85]	[0.35]	[1.34]	[0.20]
Banks with large and rapidly growing FX loans			-270.268	10.549		
			[0.88]	[0.63]		
Banks with large and rapidly growing household loans					1.872	-3.721**
					[0.03]	[2.18]
Credit growth through banks with large and rapidly growing FX loans (lagged)				-0.626		
				[0.53]		
Credit growth through banks with large and rapidly growing household loans (lagged)						0.134*
						[1.82]
Observations	96	96	81	81	81	81
R-squared	0.36	0.84	0.42	0.87	0.44	0.87

Sources: Bankscope; IMF's *International Financial Statistics* ; and IMF staff estimates.

Notes: The sample covers Polish commercial banks for which data are available in Bankscope (accounting for more than 85 percent of total banking system assets). The dependent variable in the first equation is the annual percent change in outstanding bank loans, in real terms. In the second equation, the dependent variable is distance to default, calculated using bank account data. Exogenous variables include annual real GDP growth, GDP per capita in U.S. dollars, real lending interest rates, the annual percent change in the real exchange rate of local currency vis-a-vis the U.S. dollar, the net interest margin, the cost-to-income ratio, the liquidity ratio, and bank size (measured by total assets in U.S. dollars), all lagged by one year. The model also includes the shares of bank capital held by foreign institutions and by the government. The model is estimated using three-stage least squares. For more details, see the accompanying multi-country Selected Issues Paper on Export Structure and Credit Growth.

D. Policy Response to Rapid Growth of Foreign Currency Credit

Lessons from Cross-Country Experiences

57. **Experiences of other European countries where housing lending in foreign currency has been popular (for example, Austria, Ireland, and Italy) provide limited guidance for Poland**. Although some banks suffered significant reputational damage when exchange rates depreciated, actual losses from exchange rate-related credit risk were fairly small in these countries, largely because exchange rate depreciation did not persist for long (Box 2). However, the fact that *ex post* losses turned out to be small does not imply that *a priori* risks had been negligible. *A priori* risks might well be even larger in Poland, because legal and risk management frameworks in Poland are likely to be weaker than in the industrial countries in question and foreclosure practices in Poland have largely been untested, given the short lending history in this country.

58. **A broader analysis of cross-country experiences suggests that encouraging proper credit assessment and risk management by banks and individuals is a policy priority in an environment of rapid credit growth**. Countries have used a variety of supervisory, regulatory and administrative measures to manage rapid credit growth in foreign currency (Appendix). A detailed analysis of country experiences by Hilbers and others (2005), suggests that these measures are likely to be most effective when implemented as part of a broad policy package that addresses regulatory flaws, strengthens supervision and introduces institutional arrangements for market infrastructure to ensure sound lending growth. In some cases, it might not be possible to limit foreign currency lending through regulation alone, for example, if incentives for such lending reflect macroeconomic factors. Attempts to do so might encourage circumvention, for example, by moving business offshore or to the nonbank sector. If risks from rapid growth in foreign currency lending are localized and concentrated in individual institutions, enhanced supervision of such institutions would be the best way to address such risks, without increasing regulatory burden. However, in cases when addressing the underlying macroeconomic imbalances is not feasible and there are significant risks to financial and/or macroeconomic stability, there might still be a case for using regulatory measures as a second-best response. Preference should be given to risk-based regulatory measures, in conjunction with strengthening supervision.

Policy Response in Poland

59. **The Polish authorities have already taken several steps to address the risks associated with rapid growth in foreign currency lending.** In 2005, the Commission for Banking Supervision (CBS) increased the risk weight on housing loans with loan-to-value ratios exceeding 50 percent to 100 percent (from 50 percent previously, which had been consistent with prevalent international practice).[34] Subsequently, the CBS introduced new

[34] The weight remains at 50 percent for loans with LTV ratios below 50 percent.

prudential recommendations for lending in foreign currency, which came into effect in July 2006. These recommendations aimed at further improving risk management and disclosure in line with good international practices. The CBS recommended that banks strengthen default risk assessments, conduct regular stress tests for the mortgage portfolio, and better inform borrowers about exchange rate exposures. Next, the authorities intend to follow up on these recommendations in the course of the regular on-site and off-site supervisory process. The authorities also indicated that they stand ready to introduce additional, quantitative restrictions on foreign currency lending, if necessary.

60. **Staff's analysis presented in this paper does not point to any specific evidence that would suggest the need for introducing administrative regulations aimed at slowing foreign currency credit growth.** The analysis implies the need for ensuring sound credit assessment and risk management practices, especially in banks actively engaged in foreign currency and household lending. Based on the econometric and other analyses discussed above, the risks from rapid credit growth seem localized and concentrated in individual institutions and are contained. Hence, an enhanced supervision of weaker institutions would be the best way to address such risks, without increasing the overall regulatory burden on the banking sector. Regulatory measures to restrict foreign currency housing lending risk being particularly counterproductive in Poland, as they might further slow the pace of financial deepening, drive business offshore or to the nonbank sector. With interest rates expected to converge to the euro-zone levels in the coming years, incentives for foreign-currency lending are likely to diminish naturally.

E. Conclusions

61. **An econometric comparison of Poland's credit growth experiences with those in other NMS suggests that, without continued improvements in the institutional framework for sound lending, Poland will continue to lag behind other NMS in financial deepening**. Slow credit growth reflects not only slow economic growth in recent years and the efforts to improve banks' balance sheets in the beginning of this decade, but also institutional and structural factors. Further improvements in process-related aspects of collateral enforcement, the quality of company accounting and auditing, and the availability of reliable information on prospective corporate borrowers are needed to foster financial development and maximize Poland's economic potential.

62. **A broad-based statistical and econometric analysis of financial and household balance sheet data implies that exchange rate-related credit risk and liquidity risk are currently contained**. Although lagging behind other NMS, financial soundness and market indicators for Polish banks are generally favorable. Household indebtedness and currency mismatches do not seem excessive at the aggregate level, and the econometric analysis suggests that the main source of credit risk is the overall state of the economy rather than the exchange rate. Bank-level analyses show that rapid credit growth has been concentrated in relatively sound banks and has not weakened bank soundness so far.

63. **The above findings do not point to a strong policy case for introducing administrative restrictions aimed at reducing the overall rate of foreign currency and/or housing credit growth**. Overly intrusive regulatory measures in this area might simply drive business offshore or to the nonbank sector, which would increase supervisory challenges without necessarily reducing the associated risks.

64. **Rapid growth of foreign currency loans puts a premium on sound lending practices and risk management and effective supervision**. Supervisors need to remain vigilant to any signs of weakening in credit standards, rising loan-to-value ratios, and an excessive concentration of risk. The main objective is to ensure that all banks have adequate credit assessment and risk management systems in place and disclose sufficient information to customers, for them to be fully aware of the risks associated with foreign currency borrowing. Continued strengthening of financial sector surveillance is also important, including improvements in stress testing and credit risk modeling, using disaggregated data on foreign currency loans and household balance sheets.

Appendix. Country Experiences with Measures to Address Risks Associated with Foreign Currency Lending

65. **This appendix illustrates a range of regulatory, supervisory, and administrative measures that authorities in different countries have used to limit risks associated with rapid growth in foreign currency credit**.[35] Although the focus is on measures aimed to control risks arising from foreign currency loans, country experiences suggest that for these measures to be most effective they need to be implemented as a part of a broader policy package aimed to create a proper regulatory and institutional framework supporting sound credit growth.

66. **Assessing the effectiveness of these policy measures is difficult for two reasons**. First, most measures have been adopted fairly recently, and their impact is unlikely to be apparent in statistics yet. Second, most measures have been often adopted as a part of a broader policy package, which makes differentiating the impact of individual measures on credit volume and credit quality difficult.

67. **Measures below are ordered broadly by their degree of restrictiveness, starting from the least invasive measures and moving to direct intervention in credit operations**:

- ***Improved monitoring of exposures***. In a number of countries (for example, *Croatia, Hungary*, and *Romania*), supervisors have stepped up their efforts to ensure that banks adequately monitor the extent of unhedged foreign exchange exposures of their borrowers, and that they properly manage the associated credit risk. These efforts included improvements in off-site tools (new or extended reporting forms, or targeted surveys) and increased focus on borrowers' foreign exchange exposures during on-site inspections.

- ***Better disclosure of risks to customers***. Supervisory authorities in *Hungary*, for example, required banks (from January 2005) to specify the risks to which their borrowers are exposed to in the contracts for mortgage loans in foreign currency. Banks are also required to disclose their interest rate charges (APRC) on foreign currency loans, which has improved transparency and comparability for borrowers, given that all related fees are included in the calculation of the APRC. Information on foreign currency risks has also been included on the web page of the financial supervisory authority.[36]

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[35] Hilbers and others (2005) include a general survey of measures countries used to address rapid credit growth. Some of these more general measures are likely to affect domestic currency credit rather than foreign currency credit. In this survey, we focus on measures geared toward loans in foreign exchange.

[36] A recent FSAP Update on Hungary commended these steps, but suggested that more can be done, such as requiring that loan applicants are provided with information on the scale of possible increases in mortgage payments under an unfavorable exchange rate scenario (see IMF, 2005b).

- ***Raising public awareness***. Central banks in countries with rapidly growing credit often highlight credit risks in their financial stability reports and other reports and public statements. *Greece, Norway, and Spain* in the late 1990s are examples of countries where rapid housing credit growth led to an increased attention by supervisors and central banks to monitoring of banks' activities, notably their credit management processes through stress testing and scenario analysis, and to enhancing market discipline through greater public disclosure. For instance, the *Spanish* authorities are closely monitoring forward-looking indicators of potential debt-servicing difficulties, placing emphasis on continued vigilance, accompanied by moral suasion, to ensure that credit institutions exercise adequate caution and put effective credit approval and monitoring processes in place.

- ***Limiting incentives to borrow***. For example, the authorities in Estonia recently reduced mortgage interest deductibility to address the rise in households' real estate-related borrowing, with plans for further reductions in deductibility.

- ***Stricter enforcement of prudent risk management practices***. Supervisors need to ensure in their on-site and off-site work that that credit risks from unhedged foreign currency-denominated or indexed loans are properly managed by banks. For example, in *Croatia*, supervisors issued guidelines to banks requiring them to (i) set up and maintain a comprehensive system of ongoing identification, measuring, monitoring, and controlling of currency-induced credit risk; (ii) develop a reliable system for granting loans exposed to the currency-induced credit risk; (iii) adequately manage the relationship between risk and the price of such loans; (iv) have in place a system of ongoing monitoring of this risk; and (v) develop adequate methods for management of this risk and build them into their credit policies and procedures.

- ***Higher risk weights***. The higher risk weights for foreign currency loans imply higher capital requirements for banks that are involved more actively in this type of lending. For example, in *Croatia*, the authorities recently increased the risk weight of unhedged foreign currency-denominated and indexed loans by 25 percentage points. All such loans extended to debtors with foreign exchange assets covering less than 80 percent of their foreign exchange liabilities are considered unhedged. *Ireland* has recently raised risk weights on mortgage loans. Effective May 2006, for mortgage loans with LTVs above 80 percent, a risk weight of 100 percent applies to the portion of the loan exceeding this threshold. In *Estonia*, the authorities recently increased the risk weighting from 50 percent to 100 percent in the capital adequacy calculation of all loans secured by mortgages on residential property. At the same time, the authorities asked all regulators of foreign banks with established branches in Estonia to consider the possibility of applying a 100 percent risk weighting to all loans secured by mortgages on residential property granted to the residents of Estonia in their calculations of capital adequacy, to promote the level-playing field for all market participants. Also, all credit institutions in Estonia (in particular, branches of foreign credit institutions) are required to include 50 percent of the total amount of loans secured by mortgages on residential property in the calculation of the base of the reserve requirement, unless the appropriate regulator applies a 100 percent risk weighting to all loans secured by mortgages on residential property granted to the

residents of Estonia in the calculation of capital adequacy. Going forward, a practical constraint on using increases in risk weights in the EU member countries is that from January 2007, any increases must be consistent with the EU Capital Requirement Directive of Basel II, which substantially limits member countries' scope for discretion with respect to risk weights. The measure can still be useful in non-EU countries, such as *Georgia*, where the risk weights for unhedged foreign exchange loans have been recently increased to 200 percent, but the scope for their use in the EU is likely to be limited.

- ***Minimum prudential norms***. Several countries (mostly the CEECs and in East Asia) recently introduced measures to limit the eligibility for loans. These measures included the requirement to deny loans to homeowners whose monthly payment exceeds a certain proportion of income (for example, 35 percent in *Romania* and 50 percent in *China*), a higher required down payment of property purchase price (25 percent in *Romania* and 30 percent in *China*), or a requirement that all mortgages be repaid before selling a home.

- ***Higher provisions and stricter loan classification***. Higher general provisions for foreign currency loans have an impact similar to that of higher risk weights. Supervisors need to ensure that unhedged foreign currency loans that have turned bad are properly provisioned through specific provisions. In *Romania*, for example, the authorities have refined regulations on provisioning and loan classification to take the exchange rate risk of the borrower into account.

- ***Reserve requirements***. For example, the *Romanian* authorities increased reserve requirements on foreign currency-denominated liabilities from 30 percent to 35 percent in December 2005, and again to 40 percent in February 2006, even though these measures may not have been motivated entirely by credit risk concerns, but also by more general macroeconomic considerations. In *Estonia*, the central bank increased the reserve requirement from 13 percent to 15 percent from September 1, 2006, aiming to curb the macroeconomic risks associated with the rapid growth of domestic demand and loans.

- ***Foreign exchange liquidity requirements***. To manage aggregate foreign exchange liquidity mismatch on banks' balance sheets, *Croatia* introduced, and subsequently tightened, minimum requirements on foreign exchange liquidity held by banks against their foreign exchange liabilities. These measures limited the foreign exchange liquidity exposures in the banking system, but they had only a limited impact on lending (and capital inflows more generally) in the context of a foreign exchange regime aiming to preserve exchange rate stability.

- ***Ceilings on exposures***. For example, the *Romanian* authorities introduced a ceiling on foreign exchange credit exposures arising from loans granted to unhedged individuals and legal persons (other than credit institutions) in the amount of 300 percent of own funds. The measure reduced the share of foreign currency loans in total loans and had limited effect on the rate of credit growth. These measures might have encouraged, however, a transfer of credit activity to the nonbank sector.

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III. Assessing the Flexibility of the Polish Economy[37]

A. Introduction

68. **A broad consensus has emerged among policy makers that flexibility is critical for good economic performance**. In various speeches Allan Greenspan praises the "remarkable increase in economic flexibility" and argues that " [t]he impressive performance of the U.S. economy … offers the clearest evidence of the benefits of increased market flexibility." (Greenspan, 2005) On the other side of the Atlantic, the "key word is flexibility" to Jean-Claude Trichet and the "lack of sufficient structural reform in Europe is … a major cause of the gap in economic growth between Europe and the US." (Trichet 2006a and 2006b). Moreover, much of the EU's Lisbon Agenda was, and is, geared toward making participating economies more flexible for the good of growth and employment.

69. **Globalization, ICT advancements, and EMU have put economic flexibility center stage**. Goods, services, and financial markets are rapidly integrating internationally, in the wake of liberalization and falling transportation and communication costs. This offers rich rewards for those that embrace the new opportunities quickly and adjust to the ever changing global environment nimbly. On the other hand, rigid economies risk falling behind, as their structures become less and less attuned to the demands of the global marketplace. EMU has likewise put a premium on flexibility. With monetary and exchange rate policies geared toward the needs of the Euro Area as a whole, adjustment to changing circumstances at the member country level must increasingly come from a flexible real sector.

70. **This chapter tries to assess the flexibility of the Polish economy**. With the transition experience under its belt, Poland is no stranger to large-scale economic change. But how does Poland fare when it comes to the ability to adjust smoothly to the new challenges of globalization and to exploit the opportunities afforded by it? The next section tries to define economic flexibility and how to measure it. Attempts to come up with a single quantitative indicator are constrained by the breadth of the concept of flexibility and by data limitations. The assessment therefore relies on a variety of different approaches and general lessons from the literature. Section C assesses flexibility using economic outcomes as a yardstick. Section D explores to what extent the elements that are typically seen as making up flexibility are in place in Poland. They include product markets, financial markets, labor markets, and the business environment. Section E concludes.

B. The Concept of Flexibility

71. **In referring to flexibility policy makers typically have an economy in mind that has one or more of the following features:**

[37] Prepared by Engin Dalgıç and Christoph Klingen.

- **Resilience in the face of shocks**. Observers are astounded by how smoothly the US economy has absorbed major shocks in recent years—such as terrorist attacks, natural disasters, and the many-fold increase of oil prices—and attribute this to increased flexibility. In terms of macroeconomic outcomes, a flexible economy would hence be characterized by low output variability, as well as high average output growth as even large adverse shocks that would otherwise trigger a full-blown recession no longer do so. In terms of the underpinning economic structure, the idea is that the economy's resilience is driven by a nimble supply side response, rather than skillful macroeconomic management.

- **Ability to embrace and create new opportunities**. Rapid change in the global economic environment constantly creates new opportunities that firms in a flexible economy are better positioned to seize than firms operating in a rigid economy. Indeed, to a large extent it is the entrepreneurial and technological ingenuity of flexible firms that generates the dynamic change of the economic landscape endogenously. In terms of macroeconomic outcomes, a flexible economy would hence exhibit superior growth performance. At the disaggregated level one would expect to see a high degree of structural change as resources are rapidly reallocated across sectors, across firms, and within firms. The fast pace of structural change would be underpinned by strong entrepreneurial spirit and conducive business conditions.

- **Full resource utilization**. In an economy with a nimble supply side, entrepreneurs operating under conducive business conditions are likely to find ways to tap resources fully. Hence, persistently high unemployment, idle capacity, and sluggish investment would be hard to square with a high degree of economic flexibility.

72. **Measuring flexibility empirically is a complex task**. The predicted macroeconomic implications—high growth, subdued output volatility, and a high degree of structural change—are very broad indicators that are also affected by many factors other than flexibility. For example, it is well known that growth performance also depends on the initial level of per capita GDP or trade openness. And observed cross country differences in output variability and structural change might reflect a higher or lower exposure to shocks rather than a higher or lower degree of economic flexibility. In the face of limited observations it is in practice not feasible to control for all these other influences. In addition, construction of empirical measures of structural change quickly run into constraints of data availability. Newer research suggests that it is often the intra-sectoral or even intra-firm reallocation of resources that is critical for flexibility. However, data on such a disaggregated level exists only for a very few countries.

73. **Any outcome-based assessment must therefore be complemented by an analysis of microlevel indicators of flexibility**. The literature suggests that it is above all a high degree of competition that makes for a nimble supply side. A high degree of competition is in turn fostered by deregulated product markets, trade openness, and private ownership of

enterprises—all aspects on which indictors are available or can be constructed relatively easily. Other aspects that are typically seen as important for flexibility are deep and accessible financial markets to finance entrepreneurial endeavors and modern labor market institutions. Finally, measures of the business environment are good summary indicators of how conducive a country's institutional setup is for entrepreneurial flexibility. Indicator-based measures of the business environment comprise many of the above mentioned elements but usually go further to also include aspects related to the functioning of the judicial system, the efficiency of public administration, corruption, etc. Survey-based measures of the business environment draw on the expert opinion of business leaders.

C. Outcome-Based Measures of Flexibility

74. **Data for measuring the degree of structural change in Poland is scant**. The most comprehensive and detailed database on sectoral output is compiled by the University of Groningen, using the OECD Structural Analysis Database as a point of departure. It contains the real value added of close to 60 sectors for the years 1994-2003 for most OECD countries. The sectoral composition of exports is available from UN Comtrade database for a wider set of countries, allowing comparison with emerging market economies, as well as OECD members. Microstudies on structural change seem unavailable for Poland, expect for one reference to firm turnover.

75. **Structural change in Poland seems to have slowed, according to sectoral output data**. The index constructed here measures the degree to which value added is reallocated between sectors during the full sample period 1994 to 2003, as well as in the first and second subperiod. No attempt is made to control for cross-country heterogeneity of shocks or initial structural misalignment. For the period as a whole, the Polish economy experienced a large degree of structural change, surpassed only by Ireland and Korea. This likely reflects a large need for restructuring when transitioning from decades of central planning and the reform push early in this process. This is confirmed when

Selected Countries: Index of Structural Change 1/

1994-2003		1994-1998/99		1998/99-2003	
Ireland	3.803	Ireland	0.964	Ireland	2.017
Korea	1.876	Czech Republic	0.517	Korea	1.328
Poland	**0.947**	Slovak Republic	0.472	Sweden	1.295
United Kingdom	0.940	**Poland**	**0.428**	United Kingdom	0.723
Japan	0.934	Korea	0.423	Japan	0.707
United States	0.876	Hungary	0.379	United States	0.617
Slovak Republic	0.831	United States	0.333	Germany	0.526
Czech Republic	0.741	Sweden	0.299	Slovak Republic	0.484
Germany	0.654	Japan	0.273	Portugal	0.423
Hungary	0.651	United Kingdom	0.262	Austria	0.398
Portugal	0.551	Belgium	0.240	Hungary	0.359
Sweden	0.538	Finland	0.232	**Poland**	**0.340**
Austria	0.504	Norway	0.229	France	0.337
Denmark	0.467	Australia	0.228	Denmark	0.306
Finland	0.464	Portugal	0.223	Italy	0.290
France	0.457	Germany	0.219	Czech Republic	0.285
Netherlands	0.395	Denmark	0.199	Finland	0.285
Norway	0.379	Netherlands	0.186	Netherlands	0.281
Italy	0.378	France	0.174	Canada	0.239
Australia	0.378	Canada	0.171	Norway	0.222
Canada	0.377	Greece	0.165	Australia	0.202
Greece	0.351	Austria	0.159	Greece	0.193
Belgium	0.332	Italy	0.145	Spain	0.182
Spain	0.261	Spain	0.113	Belgium	0.154

Source: IMF staff calculations based on University of Groningen 60-industry database.

1/ Weighted average of (absolute) growth rates of sectoral value added shares. Weights reflect the size of sectors.

examining the subperiods 1994-98 and 1999-2003. Poland enjoys a high ranking in the first subperiod but then falls back to a median position amongst OECD and EU countries in the second subperiod. Lately Poland ranks behind Germany, Portugal, or Austria, all of which have been rather slow growing. This raises the question whether Poland's pace of structural change is consistent with its income convergence aspirations.

76. **To a lesser extent the slowing pace of structural change is also evident in Poland's export pattern**. The structural change index is constructed from export data for 64 types of goods. Again, Poland ranks toward the top of the OECD-EU league for the full sample period 1994-2004. And, as in the value-added based analysis above, the pace of structural change declines from the earlier to the later subperiod. Within the group of OECD and EU countries, the slowdown is, however, somewhat less pronounced and Poland retains an above-median position. This might reflect that exposure to stiff competition on world markets kept exporters more agile than firms serving primarily the domestic market, where competitive pressures might have been less intense.

Selected Countries: Index of Structural Change of Exports 1/

1994/95-2003/04		1994/95-1998/99		1998/99-2003/04	
Hungary	**4.13**	**Hungary**	**4.46**	**Hungary**	**0.62**
Slovakia	**1.90**	**Slovakia**	**1.04**	**Czech Republic**	**0.60**
Czech Republic	**1.14**	Korea	0.78	Korea	0.60
Ireland	1.09	Ireland	0.62	Ireland	0.60
Poland	**1.04**	**Czech Republic**	**0.61**	Greece	0.51
Greece	0.93	**Poland**	**0.57**	**Slovakia**	**0.51**
Korea	0.90	Portugal	0.47	Norway	0.48
Portugal	0.78	Finland	0.38	**Poland**	**0.47**
Finland	0.58	Sweden	0.38	Canada	0.44
Canada	0.55	Netherlands	0.37	Portugal	0.43
Denmark	0.54	Greece	0.33	Finland	0.36
Australia	0.52	Denmark	0.29	Australia	0.36
Austria	0.47	Canada	0.28	Denmark	0.35
Norway	0.46	Australia	0.26	Austria	0.35
Netherlands	0.44	United Kingdom	0.26	Sweden	0.34
United Kingdom	0.41	Austria	0.23	United Kingdom	0.32
France	0.32	USA	0.21	Netherlands	0.27
Germany	0.31	Norway	0.20	USA	0.25
Sweden	0.30	France	0.19	France	0.23
Spain	0.29	Germany	0.17	Spain	0.21
Japan	0.27	Italy	0.16	Japan	0.21
Italy	0.27	Spain	0.15	Italy	0.18
USA	0.27	Japan	0.13	Germany	0.16

Source: IMF staff calculations based on United Nations COMTRADE Database.

1/ Weighted average of the (absolute) growth rates of sectoral export shares. Weights reflect the size of sectors.

77. **Structural change of Poland's export pattern was rather low by emerging-markets standards**. While Poland has retained a rather favorable ranking among OECD and EU countries, it fares less well when compared with emerging markets. Most emerging-market economies exhibit a considerably faster pace of change in their export structure. Poland might want to benchmark itself against such countries in light of the disappointing growth performance of many EU countries and its hopes to converge rapidly to western European income levels.

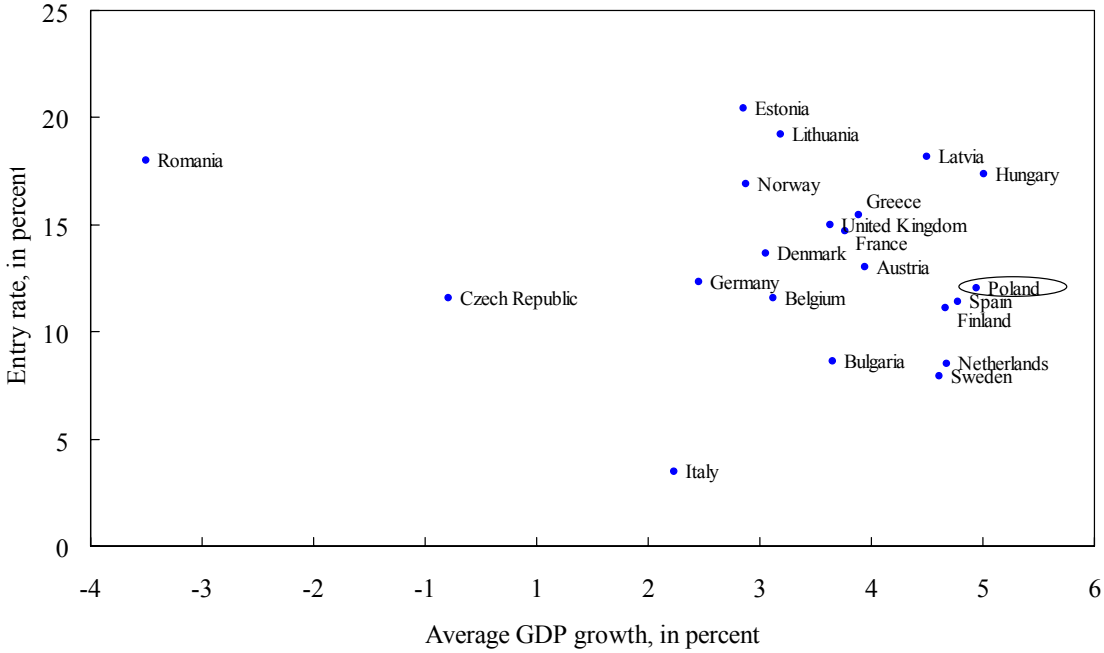
Selected Emerging Market Countries: Index of Structural Change of Exports 1/

	1998/99-2003/04
Taiwan Province of China	0.72
Argentina	0.72
Turkey	0.67
Romania	0.66
Brazil	0.65
China	0.64
Hungary	**0.62**
Czech Republic	**0.60**
Korea	0.60
Colombia	0.56
Thailand	0.53
Indonesia	0.52
Slovakia	**0.51**
Bulgaria	0.50
Estonia	**0.49**
Latvia	**0.49**
Poland	**0.47**
Chile	0.45
Venezuela	0.37
Malaysia	0.34
Slovenia	0.32
Mexico	0.31

Source: IMF staff calculations based on United Nations COMTRADE Database.
1/ Weighted average of the (absolute) growth rates of sectoral export shares. Weights reflect the size of sectors.

78. **Other indicators at the more disaggregated level confirm that structural change in Poland was not particularly rapid**. The above sectoral analysis suffers from failing to capture structural change that takes place within sectors. Recent research suggests that it is precisely "creative destruction" at this microlevel that is critical for economic flexibility (Caballero, forthcoming, and Kolasa, 2005). Unfortunately, there are few microstudies carried out for Poland that would lend themselves to cross-country comparison. The one notable exception are Klapper, Laeven, and Rajan (2004) who study firm entry rates. Poland's rate was 12 percent, comparable to western Europe, but trailing the 16 percent that was the average of transition economies' entry rates. Moreover, the sample period is 1998/99, a time of relatively strong growth in Poland. The Baltic countries had higher entry rates, although they grew much more slowly at the time. One can conjecture that Poland's entry rates have declined since 1998/99 as growth slowed in the first half of this decade. Indeed, Rogowski and Socha (2005) find that entry rates have declined considerably.

Selected Countries: Firm Entry Rates and GDP Growth, 1998/99

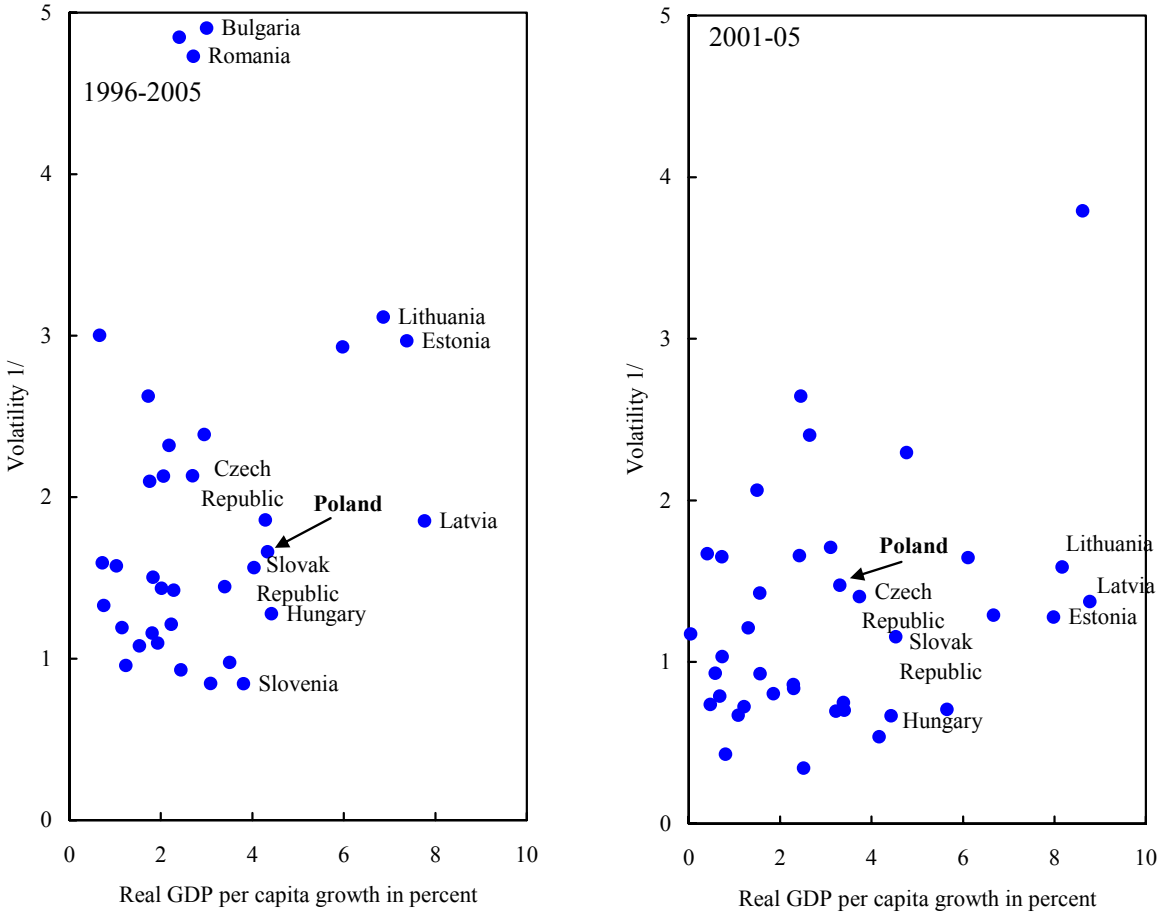


Sources: IMF staff calculations, IMF, World Economic Outlook, and Klapper and others (2004).

79. **Structural change appears a strong driver of growth**. Empirically, the value-added based and the export-based indices of structural change are strongly positively correlated with GDP and overall export growth, respectively. In the cross-country sample the correlation coefficients come out at 0.96 and 0.73, respectively. This suggests that structural change is primarily driven by firms taking advantage of new opportunities rather than restructuring needs arising from adverse shocks. It also underscores that there is little hope to achieve high rates of growth through an across-the-board expansion without the kind of structural change facilitated by flexibility.

80. **The pattern of growth performance and output volatility is also consistent with the view that Poland has fallen back in terms of flexibility**. Taking a longer term perspective and evaluating performance over the last ten years as a whole, Poland fared very similarly to regional peers. Output volatility was contained and only the Baltic countries grew significantly faster. However, when focusing on the last five years, Poland clearly trails its peers, both in terms of the level and stability of the growth rate.

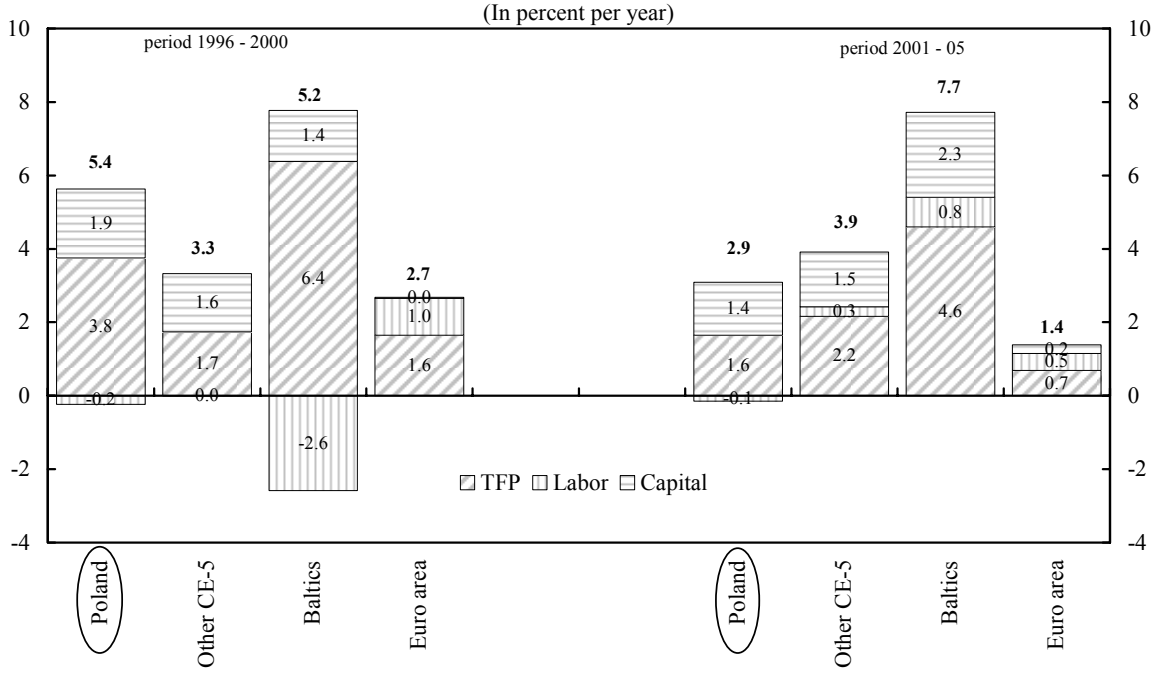
Selected Countries: GDP Growth and Output Volatility



Sources: IMF, World Economic Outlook; and IMF staff calculations.
1/ Measured as standard deviation of real per capita GDP growth rates.

Considering the multitude of factors that potentially influence growth and its volatility, one can of course not be sure to what extent the drop of Poland's performance really is attributable to insufficient flexibility. However, it is worth noting that the growth slowdown was driven by total factor productivity, an area likely to be most directly affected when efforts to make the economy more flexible slacken. Total factor productivity contributed 3.8 percentage points to growth during 1996-2000 but only 1.6 percentage points during 2001-05, thus accounting for almost 90 percent of the slowdown in overall GDP growth.

Poland and Country Groups: Growth Contributions in 5-Year Periods
(In percent per year)

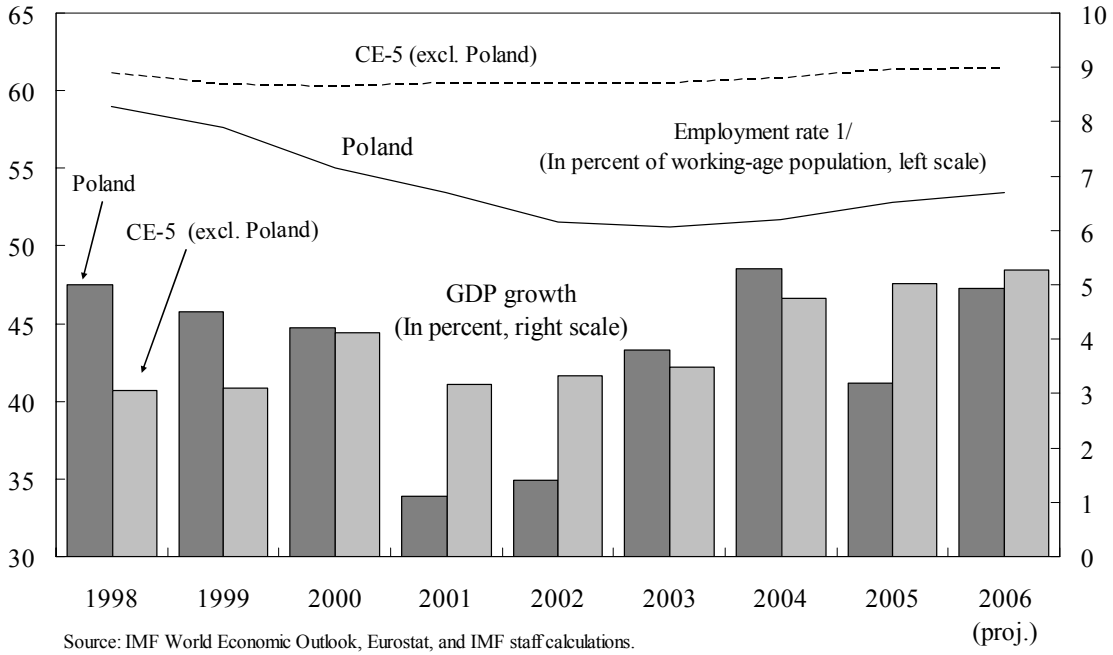


Source: IMF staff calculations.

81. **Poland's poor labor market performance is indicative of a lack of flexibility in large parts of the economy**. The employment rate is notoriously low. Only 52 percent of the working-age population was employed in 2005, less than in any other EU country. At the same time, unemployment remains the highest in the EU. Over 18 percent of the labor force were unemployed in 2005, although the recent cyclical upswing of the economy together with the migration of larger numbers of Polish workers to other EU countries has brought some relief. Moreover, it is sometimes argued that Poland's labor market statistics are biased by extensive unregistered economic activity. However, this is likely to also be the case in other countries and it remains unclear whether the presence of unregistered economic activity really much distorts countries' relative labor market performance as reflected in official labor market statistics. In any event, there can be few doubts that economic institutions in Poland do a relatively poor job in utilizing labor resources, by either letting them lie idle or employing them unproductively in the informal sector. This waste of resources is inconsistent with the notion of a highly flexible economy where a conducive business

environment would allow nimble firms to tap resources fully and efficiency with few intermittent disruptions.

Central European Countries: Employment Rate and Real GDP Growth, 1998-2006



Source: IMF World Economic Outlook, Eurostat, and IMF staff calculations.
1/ Data for 2006 refer to the first quarter.

D. Microlevel Indicators of Flexibility

82. **Deregulated product markets, modern labor market institutions, and accessible financial markets are traditionally seen as the main underpinnings of overall economic flexibility**. They are, for example, the main areas that HM Treasury examines in its periodic assessments of the UK's readiness to join the Euro area (2003). That said, there are additional dimensions which importantly affect overall economic flexibility, such as entrepreneurial spirit, framework conditions for businesses, or a supportive educational system, to name a few. However, they are less tangible and difficult to measure. This section therefore focuses mainly on the traditional elements but also includes a discussion of business environment indicators.

83. **An emerging literature offers some clues about the relative importance of the different elements of flexibility**. Ideally, policy makers would like to know where flexibility matters most so that they are better able to focus their reform efforts in the most promising areas. Several papers and studies establish the link between the different elements of flexibility and macroeconomic performance: product market deregulation is found to increase investment (Alesina et al., 2005), labor demand (Griffith et al., 2004), and output growth (IMF, 2004). Similarly, labor market regulations such as employment protection laws are linked to higher unemployment (IMF, 2003) and lower output growth (Loayza et al., 2004). In addition, more recent research uncovers complementarities between labor and product

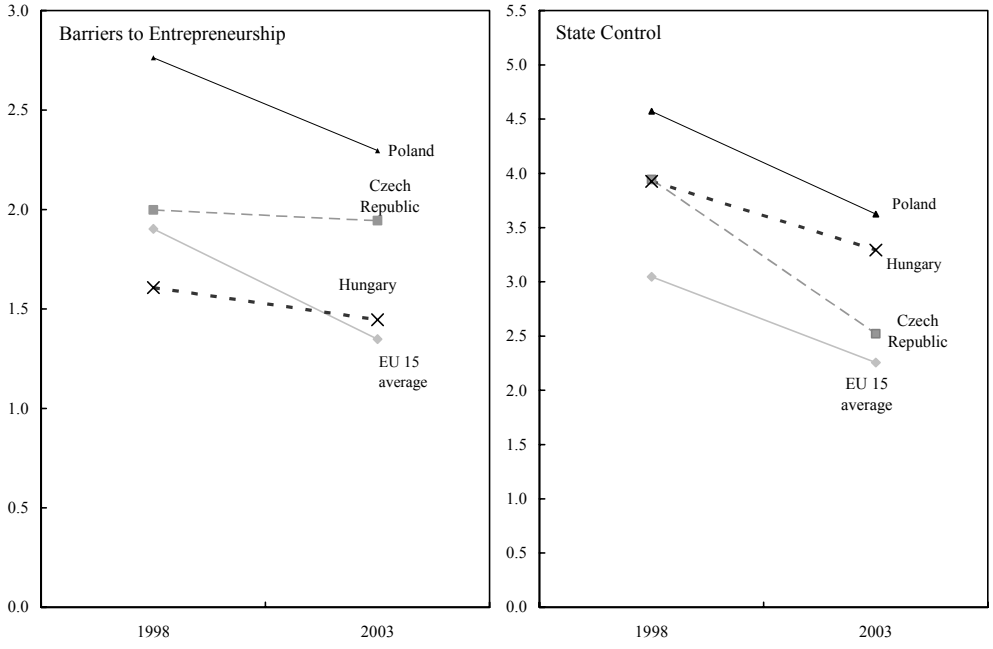
market reforms (Blanchard and Giavazzi, 2003, and Berger and Danninger, 2005). Several papers establish a robust link between financial development and growth, but the direction of causation remains difficult to establish (see Levine, 2004, for a survey). Loayza and others (2005) find that the contribution of trade to growth increases with labor market and firm-entry flexibility. Regarding the most promising areas of reform, ensuring a high degree of competition appears to be the single most important framework condition (Jaumotte and Pain, 2005).

Product markets

84. **Poland's product markets appear to be the most regulated in the OECD**. Conway and others (2005) comprehensively study product market regulations for the OECD. They cover all member countries and provide an assessment for the years 1998 and 2003. Although their summary index indicates a declining degree of rigidities, Poland ranks as the country with the most regulated product markets in both years. The poor rating permeates both subindices, the one on inward-oriented policies, measuring the degree of state control and barriers to entrepreneurship, and outward-oriented policies, measuring obstacles to trade and invest freely across borders.

85. **Inward-oriented policies suffer from a relatively high administrative burden to market entry and relatively widespread state control of enterprises**. As a result Poland fares poorly in the two subcategories of inward-oriented policies, "barriers to entry" and "state control." Apart from the administrative burden for firms to enter the market, "barriers to entry" also consider legal restrictions on entry and antitrust exemptions, both areas in which Poland appears not to have a particular shortcoming. Poland's "state control" rating is pulled down because the government retains ownership control over a sizable share of the economy in a variety of sectors. Other forms of state control, such as price controls or intrusive regulation are not found to be areas where Poland has particular deficits.

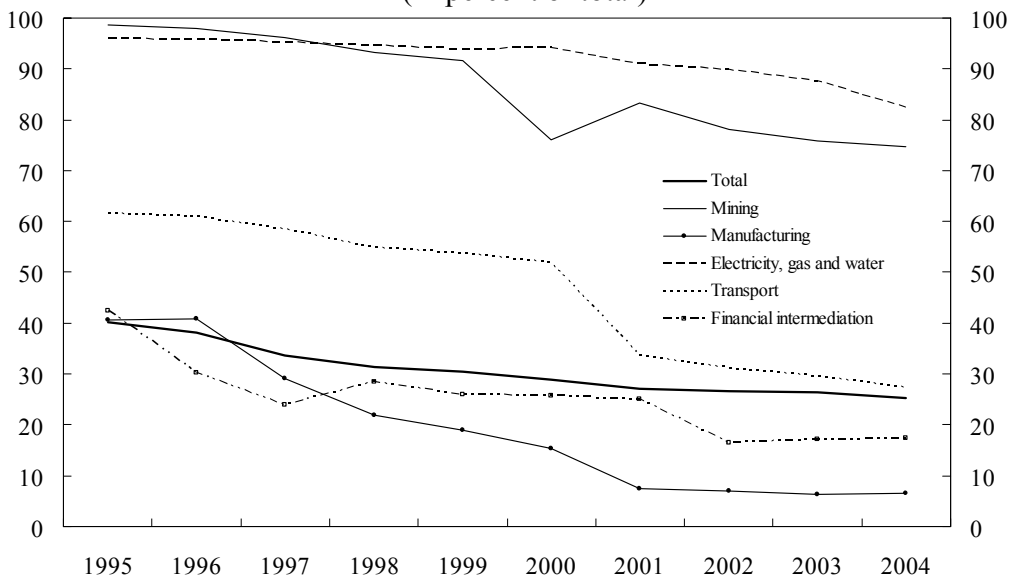
Selected OECD Countries: Product Market Regulations, 1998-2003



Source: Conway and others (2005).

86. **Poland's relative shortcomings are likely to have persisted**. The OECD study is somewhat dated and reforms since 2003 might have changed the picture. Indeed, Poland has streamlined the registration process for firms newly entering the market in the context of the 2004 Enterprise Freedom Act. However, the more up-to-date "Doing Business" survey of the World Bank (2006) still ranks Poland only 92nd in a sample of 155 countries in this aspect, much behind the EU 15 (average rank of 45) and other central European countries (average rank of 54). Regarding state ownership, 25 percent of output still came from state-controlled enterprises in 2004 and government disengagement since then has been limited.

Poland: Public Ownership in Selected Sectors
(In percent of total)



Source: Central Statistical Office of Poland.

87. **Turning to outward-oriented policies, the lack of openness of the Polish economy suggests scope for further liberalization**. In the OECD study, Poland's ratings are poor, because of relatively high tariffs and widespread barriers to foreign ownership of Polish assets, although administrative procedures or regulatory barriers that would discriminate against foreigners appear not be an issue. Again, it is not clear whether this unfavorable assessment still applies. The study reflects policies that were in place in 2003 and the alignment of Polish laws and regulations with the *acquis communautaire* in the runup to EU membership in 2004 have likely liberalized the foreign trade and investment regime since then. However, empirically Poland's trade openness remains below what country characteristics would suggest (see Box). This indicates that there remains room for further liberalization also in the area of outward-oriented policies, be it in the legal framework or in its practical implementation.

Box. Openness of the Polish Economy

Poland has the lowest ratio of trade to GDP among the central and eastern European countries, even though they share similar geographical locations and economic structures. Their trade policies have also converged in the wake of EU accession.

The larger size of Poland's economy partly explains its low trade ratio. A cross-country regression for a sample of 130 countries seeks to control for size and other pertinent country characteristics. Indeed, regressing population, distance to trading partners, per capita GDP, an index of administrative barriers, and dummies for major world regions on trade ratios explains about 70 percent of their observed variation.

However, even after controlling for Poland's larger size its trade ratio remains unduly low. The regression results confirm that given Poland's characteristics, it would be expected to have a lower trade ratio than other central European countries. However, Poland's actual trade ratio of 63 percent of GDP for the sample period 2003-05 falls substantially short the 87 percent that would be predicted on the basis of its economic characteristics.

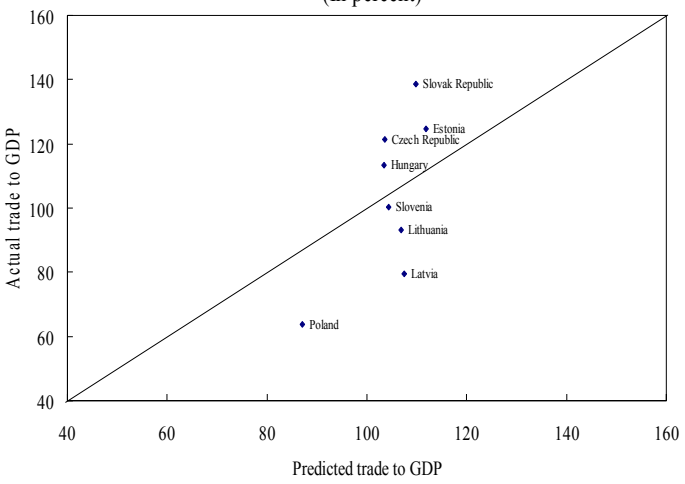
Openness Regression Results

Dependent variable: Trade ratio to GDP Sample period: 2003-05		
Explanatory Variable	Coefficient	*p*-value
Log of population	-0.07	0.00
Distance to trade partners	0.00	0.03
Administrative barriers 1/	-1.4E-03	0.03
Per capita GDP	-4.5E-06	0.02
Landlocked	0.08	0.11
Dummy, CEEC-8	0.22	0.01
Number of observations	130	
R-squared (adjusted)	0.69	

Source: IMF staff calculations.

1/ Number of days it takes to complete procedures to export and import a standard cargo of goods.

Actual and Predicted Trade Ratios
(In percent)



Source: IMF, World Economic Outlook; and IMF staff calculations.

Labor markets

88. **Labor laws and regulation appear not to unduly impede labor market flexibility in Poland**. Employment protection legislation in Poland is less strict than in the OECD on average and or in regional peers, according to the index calculated by the OECD, echoing the findings in business environment surveys, as discussed below. Minimum wage is earned by 4 percent of full time employees, and stands at around 35 percent of average wages. While this is a rather moderate ratio by international standards, it might be binding in distressed regions or for inexperienced workers, possibly shutting them out of the labor market (Ministry of Economy and Labor, 2005). And legislation adopted last year that adjusts the minimum wage each year by wage growth plus a premium until it reaches 50 percent of the average wage could create problems over time.

OECD Countries: Strictness of Employment Protection Legislation, 2003 1/

	Regular employment	Temporary employment	Collective dismissals	Overall
United States	0.2	0.3	2.9	0.7
Canada	1.3	0.3	2.9	1.1
United Kingdom	1.1	0.4	2.9	1.1
Ireland	1.6	0.6	2.4	1.3
New Zealand	1.7	1.3	0.4	1.3
Australia	1.5	0.9	2.9	1.5
Switzerland	1.2	1.1	3.9	1.6
Hungary	**1.9**	**1.1**	**2.9**	**1.7**
Denmark	1.5	1.4	3.9	1.8
Japan	2.4	1.3	1.5	1.8
Czech Republic	**3.3**	**0.5**	**2.1**	**1.9**
Korea	2.4	1.7	1.9	2.0
Slovak Republic	**3.5**	**0.4**	**2.5**	**2.0**
Finland	2.2	1.9	2.6	2.1
Poland	**2.2**	**1.3**	**4.1**	**2.1**
Austria	2.4	1.5	3.3	2.2
Netherlands	3.1	1.2	3.0	2.3
Italy	1.8	2.1	4.9	2.4
Belgium	1.7	2.6	4.1	2.5
Germany	2.7	1.8	3.8	2.5
Norway	2.3	2.9	2.9	2.6
Sweden	2.9	1.6	4.5	2.6
France	2.5	3.6	2.1	2.9
Greece	2.4	3.3	3.3	2.9
Spain	2.6	3.5	3.1	3.1
Mexico	2.3	4.0	3.8	3.2
Portugal	4.3	2.8	3.6	3.5
Turkey	2.6	4.9	2.4	3.5

Source: OECD Employment Outlook 2004.

1/ A higher value indicates stricter employment protection legislation.

89. **However, labor is saddled with a large tax burden in Poland, hampering full utilization of labor resources**. The tax wedge, measured as the difference between labor costs and take-home pay, is toward the high end of OECD countries' range, though comparable with other central European countries. The bulk of the tax wedge reflects social security contributions, with income taxes playing a more moderate role. Indeed, in no other

OECD country do social security contributions account for as large a share of public revenues as they do in Poland. The large difference between labor costs and take-home pay means that many employment contracts that would be mutually beneficial to employers and employees in the absence of the tax wedge are not concluded, driving down employment ratios. Moreover, labor taxation exhibits little progressively in Poland, thus exposing those at the lower end of the income distribution to hysteresis-type unemployment. During unemployment spells in the wake of adverse economy shocks their skills deteriorate thus damaging their employability permanently.

OECD Countries: Tax Wedge, 2005 1/
(percent)

	Earning as a percent of average earnings			Progressivity
	67	100	167	
Belgium	49.1	55.4	60.8	12.8
Germany	46.7	51.8	53.6	10.9
Sweden	46.5	47.9	54.4	3.0
Hungary	42.9	50.5	56.5	17.7
Austria	42.5	47.4	50.8	11.5
Poland	42.4	43.6	44.8	2.8
Czech Republic	42.1	43.8	46.2	4.0
Turkey	41.9	42.7	44.5	1.9
Italy	41.7	45.4	50.0	8.9
France	41.4	50.1	53.1	21.0
Netherlands	41.3	38.6	42.2	-6.5
Finland	39.5	44.6	50.4	12.9
Denmark	39.3	41.4	49.7	5.3
Spain	35.7	39.0	42.4	9.2
Slovak Republic	35.3	38.3	40.3	8.5
Greece	34.4	38.8	45.6	12.8
Norway	34.3	37.3	43.9	8.7
Portugal	31.7	36.2	41.6	14.2
United Kingdom	29.9	33.5	37.1	12.0
Luxembourg	29.8	35.3	42.7	18.5
Canada	27.0	31.6	32.9	17.0
Switzerland	26.7	29.5	33.9	10.5
United States	26.7	29.1	33.7	9.0
Japan	26.5	27.7	30.3	4.5
Australia	24.8	28.3	35.6	14.1
Iceland	23.6	29.0	37.0	22.9
Ireland	19.9	25.7	36.1	29.1
New Zealand	18.9	20.5	26.2	8.5
Korea	15.6	17.3	21.4	10.9
Mexico	14.1	18.2	24.2	29.1
Memorandum items:				
OECD evarage	33.7	37.3	42.1	10.7
EU-15 average	38.0	42.1	47.4	10.8
CEEC-4 average	40.7	44.1	47.0	8.3

Source: OECD, Taxing Wages 2005.

1/ Tax wedge is defined as income tax plus employee and employer contributions less cash benefits as a share of total wage cost. For a single worker with no children.
2/ Percent increase in the tax wedge as the earning of the worker goes up from 67 to 100 percent of average earnings. Higher numbers indicate greater progressivity.

90. **Easy access to out-of-work benefits is probably the single largest drawback of labor market institutions in Poland**. The generosity of benefits is typically assessed by means of the net replacement ratio—the after-tax benefit as a percent of net income when working. Judging from replacement ratios alone, Poland's system would appear to be somewhat less generous than that of the median OECD country. However, benefits seem easily accessible. Despite reform efforts, about 9 percent of the working age population remains on disability or early retirement pensions. This reduces incentives to take up work and lengthens unemployment spells, during which workers tend to deskill. Indeed, generous social transfers are identified as one of the main culprits for the steep increase of unemployment from the mid-1990s by Estevao (2003), along with skill mismatches.

OECD Countries: Net Replacement Ratios, 2004 1/

	Initial Unemployment	Fifth year of Unemployment	More than five years of Unemployment		Average
			With social assistance	Without social assistance	
Finland	79	81	88	71	80
Portugal	86	81	85	56	77
Austria	71	77	86	71	76
Denmark	73	75	81	70	75
France	77	69	81	71	75
Germany	77	67	76	74	74
Sweden	81	80	90	42	73
United Kingdom	65	74	76	75	73
Luxembourg	89	78	86	33	72
Netherlands	80	75	83	46	71
New Zealand	67	67	75	75	71
Iceland	61	72	79	67	70
Ireland	58	75	82	64	70
Switzerland	81	78	93	24	69
Australia	69	64	70	70	68
Belgium	59	59	67	67	63
Poland	**54**	**73**	**84**	**39**	**63**
Norway	73	62	75	38	62
Spain	75	43	58	58	59
Czech Republic	**61**	**68**	**74**	**21**	**56**
Japan	59	71	79	9	55
Canada	76	52	59	29	54
Hungary	**52**	**33**	**42**	**42**	**42**
Slovak Republic	**57**	**41**	**51**	**13**	**41**
Korea	50	45	57	6	40
United States	59	39	45	5	37
Greece	55	3	37	37	33
Italy	62	0	6	6	19

Source: OECD.
1/ For married couple with two children and on earner of 100 percent of the average production wage.

91. **Evidence on wage flexibility is mixed**. The flexibility of labor market institutions can also be judged indirectly by the extent of wage rigidity in the economy. If institutions are flexible, changes in the economic environment that affect labor productivity should lead to wage adjustments rather than employment fluctuations. Two recent studies try to establish whether there is evidence of downward rigidity of nominal wages in Poland. Yamaguchi (2005) finds downward rigidity in labor force survey data. But Brzoza-Brzezina and Socha (2006) argue that it is more appropriate to focus on data on total employee compensation at the firm level. This data exhibits no evidence of undue downward rigidities.

Financial markets

92. **Accessing financing appears relatively difficult in Poland, potentially constraining a flexible supply-side response in a changing economic environment**. Even the most efficient companies would find it hard to expand or restructure had they to rely solely on retained earnings. According to the Business Environment and Enterprise

Performance Survey (BEEPS) of the EBRD and the World Bank, enterprises rate costs higher and access to financing harder in Poland than in any other central European economy. Polish enterprises pledge higher collaterals than elsewhere and make greater recourse to own-source funding. These difficulties of securing affordable financing are confirmed by other business environment surveys, which are discussed below.

93. **Accordingly Poland's capital markets are shallow compared to other OECD or EU countries**. The principle domestic sources of outside financing are the banking system, equity markets, and bond markets. In Poland they account for a combined finance volume of less than 40 percent of GDP—much below ratios of over 150 percent of GDP typical in the OECD or the EU. A lack of financial depth is characteristic across central and eastern Europe, but in most other countries bank credit has been growing at high rates in recent years while Poland has experienced a much smaller, and more recent, pickup.

OECD and EU Countries: Financial Market Depth, 2004

	Private sector bank credit to residents	Equity market capitalization	Security markets capitalization (domestic, private)	Total
	(In percent of GDP)			
Netherlands	158.7	204.7	59.0	422.3
Switzerland	160.7	209.6	33.6	403.9
Denmark	158.8	58.1	129.9	346.8
United States	66.2	149.1	114.4	329.7
United Kingdom	155.7	127.3	16.3	299.3
Japan	98.1	120.5	41.7	260.2
Australia	102.6	115.3	39.4	257.2
Luxembourg	113.4	143.3	…	256.8
Spain	125.5	82.5	36.9	244.9
Sweden	104.8	96.9	39.1	240.8
Portugal	150.3	40.2	29.8	220.3
Canada	84.8	109.8	18.9	213.6
Ireland	134.8	56.4	15.3	206.5
France	90.8	63.9	42.5	197.2
Korea	89.0	54.0	52.8	195.9
Germany	111.9	39.6	34.3	185.8
Finland	68.8	90.1	23.9	182.8
Iceland	178.3	0.1	…	178.4
Italy	87.8	42.9	46.9	177.6
Belgium	72.0	68.5	36.8	177.3
Austria	104.9	27.2	37.4	169.5
New Zealand	122.5	41.3	…	163.8
Norway	79.2	50.0	22.0	151.2
Cyprus	120.2	27.7	…	147.9
Greece	77.7	53.5	0.4	131.7
Mexico	14.4	90.3	3.3	108.1
Slovenia	45.8	27.3	…	73.1
Hungary	46.5	19.5	4.6	70.6
Czech Republic	33.2	9.9	6.3	49.4
Estonia	42.4	5.0	…	47.4
Latvia	44.2	1.9	…	46.1
Slovak Republic	31.2	10.6	…	41.8
Poland	**26.6**	**10.7**	**…**	**37.3**
Turkey	20.5	13.0	…	33.5
Lithuania	25.7	3.6	…	29.3
OECD average	**95.7**	**73.3**	**36.9**	**198.5**
EU average	**92.4**	**52.5**	**35.0**	**167.2**

Sources: GFSR, BIS, World Federation of Exchanges, IFS, and national SE websites.

Business environment

94. **A favorable business environment is critical for economic flexibility**, as firms are well positioned to react fast and with minimal frictions to changing circumstances only in an economy where doing business is easy. Indicators that seek to measure the quality of the business environment therefore also speak to flexibility and merit careful attention in any assessment of an economy's flexibility. Moreover, analysis of the many subcomponents that make up business environment indicators can offer some clues about areas of relative strength and weakness. Many subcomponents try to capture aspects that have already been discussed above, such as product and labor market regulation and availability of financing, providing reassurance that they are indeed instrumental for making doing-business easy and, by extension, the economy flexible. But business environment indicators also add several new dimensions: the quality of the judicial system, investor rights, the financial and administrative burden of taxation, the quality of infrastructure, perceived conflict risk, technological proficiency, the quality of public institutions, the level of corruption, etc.

95. **Poland fares quite poorly in virtually all business environment surveys**. The below table summarizes the country rankings according to the most commonly used indicators. The country coverage of the surveys is quite broad, ranging from 60 to 157. On average Poland ranks not even in the top-40 percentile. With the exception of the institutional quality index compiled by the International Country Risk Guide (ICRG), Poland ranks last or second to last relative to its peers in the region.

OECD and EU Countries: Country Ranking According to Business Environment Indicators 1/

World Bank Doing Business		WEF Growth Competitiveness		WEF Business Competitiveness		IMD World Competitiveness		ICRG Institutional Quality		Heritage Foundation Economic Freedom	
New Zealand	1	Finland	1	United States	1	United States	1	Finland	1	Ireland	3
United States	3	United States	2	Finland	2	Iceland	4	Australia	2	Luxembourg	4
Canada	4	Sweden	3	Germany	3	Canada	5	Luxembourg	3	Iceland	5
Norway	5	Denmark	4	Denmark	4	Finland	6	Denmark	4	United Kingdom	6
Australia	6	Iceland	7	United Kingdom	6	Denmark	7	Iceland	5	Estonia	7
Denmark	8	Switzerland	8	Switzerland	7	Switzerland	8	Germany	6	Denmark	8
United Kingdom	9	Norway	9	Japan	8	Australia	9	Netherlands	7	Australia	9
Japan	10	Australia	10	Netherlands	9	Luxembourg	10	Sweden	8	New Zealand	10
Ireland	11	Netherlands	11	Austria	10	Ireland	12	Ireland	9	United States	11
Iceland	12	Japan	12	France	11	Netherlands	13	Norway	10	Canada	12
Finland	13	United Kingdom	13	Sweden	12	Sweden	14	Switzerland	11	Finland	13
Sweden	14	Canada	14	Canada	13	Norway	15	United States	12	Switzerland	15
Lithuania	15	Germany	15	Australia	15	New Zealand	16	Cyprus	13	Cyprus	16
Estonia	16	New Zealand	16	Belgium	16	Austria	17	New Zealand	14	Netherlands	17
Switzerland	17	Korea	17	Iceland	17	Japan	21	United Kingdom	15	Austria	18
Belgium	18	Estonia	20	New Zealand	18	United Kingdom	22	Austria	16	Germany	19
Germany	19	Austria	21	Ireland	19	Germany	23	Belgium	18	Sweden	20
Netherlands	24	Portugal	22	Norway	21	Belgium	24	Canada	19	Czech Republic	21
Latvia	26	Luxembourg	25	Korea	24	Estonia	26	Japan	20	Belgium	22
Korea	27	Ireland	26	Spain	25	Korea	29	Portugal	21	Lithuania	23
Spain	30	Spain	29	Estonia	26	France	30	France	24	Malta	24
Austria	32	France	30	Czech Republic	27	Czech Republic	36	Spain	25	Japan	29
Slovak Republic	37	Belgium	31	Portugal	30	Hungary	37	Malta	26	Norway	31
Czech Republic	41	Slovenia	32	Slovenia	32	Spain	38	Slovenia	27	Portugal	32
Portugal	42	Cyprus	34	Hungary	34	Slovak Republic	40	Greece	30	Spain	33
France	44	Malta	35	Cyprus	36	Portugal	45	Turkey	32	Slovak Republic	35
Hungary	52	Czech Republic	38	Italy	38	Turkey	48	Latvia	36	Slovenia	38
Poland	**54**	Hungary	39	Slovak Republic	39	Greece	50	**Poland**	**38**	Latvia	39
Slovenia	63	Slovak Republic	41	Greece	40	Slovenia	52	Czech Republic	39	Hungary	40
Italy	70	Lithuania	43	Lithuania	41	Italy	53	Estonia	40	**Poland**	**41**
Mexico	73	Latvia	44	**Poland**	**42**	Mexico	56	Hungary	41	Italy	42
Greece	80	Greece	46	Malta	46	**Poland**	**57**	Korea	42	France	44
Turkey	93	Italy	47	Latvia	48	Cyprus	--	Lithuania	49	Korea	45
Cyprus	--	**Poland**	**51**	Turkey	51	Latvia	--	Slovak Republic	55	Greece	57
Luxembourg	--	Mexico	55	Mexico	60	Lithuania	--	Italy	60	Mexico	60
Malta	--	Turkey	66	Luxembourg	--	Malta	--	Mexico	80	Turkey	87
OECD average	**28**	**OECD average**	**25**	**OECD average**	**23**	**OECD average**	**25**	**OECD average**	**23**	**OECD average**	**25**
EU average	**32**	**EU average**	**25**	**EU average**	**23**	**EU average**	**28**	**EU average**	**25**	**EU average**	**28**
Memo:											
sample size	*155*		*117*		*116*		*60*		*140*		*157*

Sources: The World Bank, World Economic Forum (WEF), IMD, International Country Risk Guide (ICRG), and Heritage Foundation.
1/ Data refers to 2006 or latest available observation.

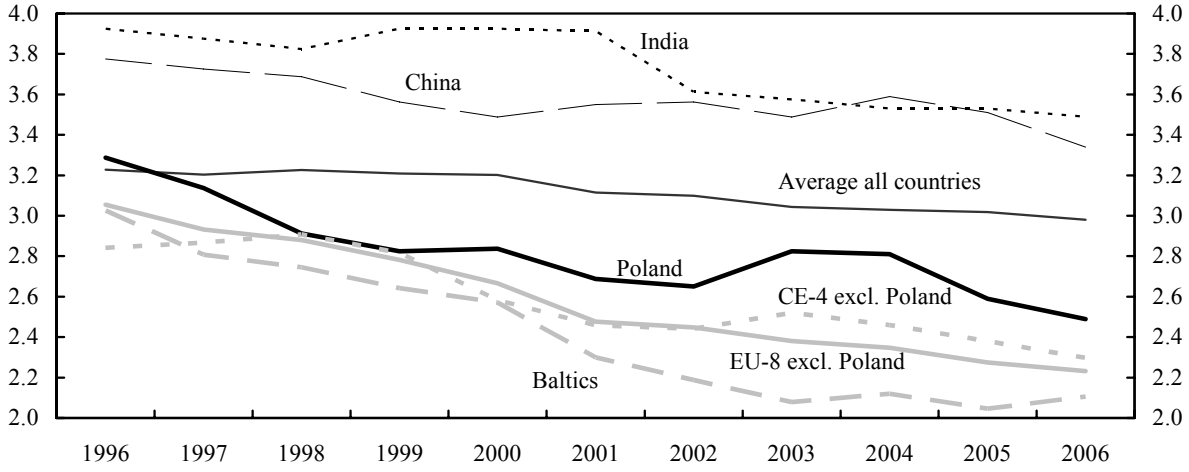
96. **Poland also seems to have made less progress than most of its peers in improving its business environment**. Sufficiently long time series are available only for a few indicators. They seem to suggest that the business environment is generally on an improving trend in Poland. But elsewhere it is improving more rapidly, so that Poland's relative position has been deteriorating. According to the Heritage Foundation's index of economic freedom, in the late 1990s Poland's business environment was roughly at par with that of the other EU-8 countries (Hungary, the Czech and Slovak Republics, the Baltic countries, and Slovenia). However, since then a gap has been opening to Poland's disadvantage, which has only recently begun to shrink. The World Economic Forum's competitiveness index confirms that Poland has not managed to pull ahead of other countries. Since 2001, the first survey that covers all EU-8 countries, Poland has retained its position as roughly the fortieth most competitive country. All other EU-8 countries have improved their ranking, except for Hungary which fell behind but retains a ranking substantially ahead of Poland.

Selected Countries: World Competitiveness Ranking

	2001	2005 1/	Improvement of R
Estonia	29	18	11
Slovenia	31	29	2
Czech Republic	37	31	6
Hungary	28	32	-4
Lithuania	43	35	8
Latvia	47	36	11
Poland	41	42	-1

Source: World Economic Forum.
1/ Adjusted. Rank amongst the 75 countries included in the 2001 competitiveness ranking.

Index of Economic Freedom 1996-2006
(As compiled by the Heritage Foundation; lower number indicates more freedom)



97. **Cumbersome procedures, difficulties to enforce contracts, and problems to secure credit appear to be the main shortcomings of Poland's business environment**. The subcomponents of the World Bank's Doing Business survey offer some insights into the relative strengths and weaknesses of Poland's business environment. The interests of investors appear well protected and restrictions on the hiring and firing of labor seem less of an issue than in regional peers or the EU-15 countries. On the other hand, the survey suggests that the business environment is most severely hampered by excessive licensing

requirements, difficulties to enforce contracts, and problems to obtaining credit. In measuring licensing requirements the survey focuses on the construction sector: it compares across countries how many licenses are needed, how much they cost, and how long it takes to obtain them for building a standardized warehouse. It finds that it takes 322 days to get the 25 licenses required at a cost of 83 percent of per capita GDP. The subcomponent on contract enforcement is designed to capture the efficiency of the judicial system. The specific standardized example considered is a debt contract between two non-financial entities with the debtor defaulting and the creditor filing a lawsuit. Poland's court system appears to work extremely slowly with contract enforcement taking 980 days, compared to an average 375 and 262 days in the other EU-8 and the EU-15. According to the survey, access to credit is hampered mainly by weak legal rights of creditors, especially in the area of secured lending, but also by insufficient credit information through private credit bureaus or public registries.

Components of Business Environment Assessment
(Country Ranking according to Doing-Business Survey 1/)

Poland fares relatively well in...

	Protecting Investors	Hiring and Firing	Trading Across Borders
Poland	**22**	**64**	**34**
EU-8 average excl. Poland	63	94	42
EU-15 average 2/	62	98	21

but is behind in...

	Dealing with Licenses	Enforcing Contracts	Getting Credit	Paying Taxes	Starting a Business
Poland	**120**	**104**	**88**	**106**	**92**
EU-8 average excl. Poland	52	37	34	64	54
EU-15 average 2/	37	24	39	56	45

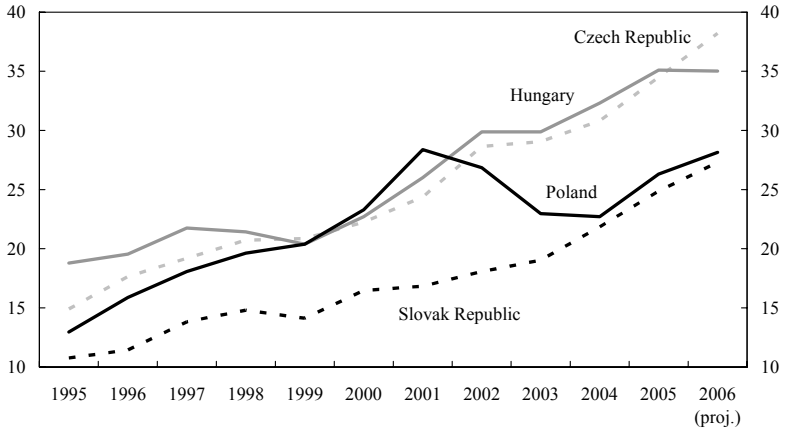
Source: World Bank, Doing Business in 2006.
1/ Lower ranking indicates better performance.
2/ Excludes Luxembourg.

98. **Other studies confirm the findings of the business environment surveys while offering more concrete guidance for improvements**. EBRD (2005) assesses Poland's system for collateralized lending in detail and suggests considering registering pledges and mortgages through a simple administrative notice system rather than through bureaucratic court decisions, allowing the private sales of called-up collateral instead of relying on court-led auctions, and clarification of the mortgage law. All this would bring down lending cost, stimulate market entry, and strengthen competition. Balcerowicz (2006) studies administrative obstacles for businesses operating in Poland. While the 2004 Law on Economic Freedom and the introduction of binding ex-ante tax rulings in 2005 were important steps forward, room for further improvement remains: market entry could be stimulated by lowering still high costs of establishing limited liability companies and minimum capital requirements, scaling back self-regulation of professions, and making the complex licensing regime more transparent. As to the construction sector, it is well known that the lack of spatial development plans has hampered real estate development in many areas of the country.

99. **Relatively favorable labor cost developments seem to have compensated for disadvantages in the business environment**. Notwithstanding Poland's poor business environment ratings, a couple of recent surveys by business consultancies suggest that

Poland has become quite attractive for investors. In Ernst & Young's European Attractiveness Survey, business leaders rank Poland the fourth most desirable destination for foreign investment. And according to A.T. Kearney's Foreign Direct Investment Confidence Index Poland advanced to fifth position in 2005. The surveys also suggest that Poland's attractiveness seems to be grounded predominantly in low labor costs rather than business-friendly regulation or good infrastructure. Indeed, data on employee compensation in Central Europe confirm that Poland's wage cost advantage over Germany is unchanged from the beginning of the decade while it has shrunk in the case of Hungary, the Czech Republic, and the Slovak Republic.

CE-4: Employee Compensation, 1995-2006
(Per business-sector employee, in percent of compensation in Germany)



Sources: OECD Economic Outlook Database (June 2006); and IMF staff calculations.

E. Summary and Conclusions

100. **The many indicators examined in this chapter suggest that there exists considerable room for enhancing the flexibility of the Polish economy**. Given that there is no single indicator that adequately captures flexibility, the assessment in this chapter relies on a multitude of measures. In the period covering the last five years, outcome-based measures attest to a slowing pace of structural change, particularly in firms that are not exposed to the discipline of export markets, a disappointing growth performance, and underutilization of labor. Microlevel indicators point to a poor business environment, rather rigid product markets, and shallow financial markets. While efforts to make the Polish economy more flexible have generally never subsided, or gone in reverse, many other countries appear to have advanced faster. Unless this trend is reversed, Poland's hopes to converge rapidly to EU income levels could become difficult to fulfill. Indeed, as a catch-up country Poland might want to take its cues from the most dynamic emerging market economies rather than the wealthy but slow-growing countries of western Europe.

101. **Microlevel indicators and lessons from the literature offers some clues about priority areas for reform**. The literature suggests that a high degree of competition is key to economic flexibility. In Poland, difficult entry conditions for firms appear to hinder more intense competition on domestic markets. The administrative burden appears high, capital

requirements seem onerous, and licensing regulations are reportedly intransparent. At the same time, shortcomings in the judicial system, contract enforcement, and regulation of securitized lending complicate access to financing. Moreover, a sizable share of the economy remains in the hands of state-controlled enterprises, that are less subject to competitive pressures than their privately owned counterparts. The literature also stresses the importance of trade openness for economic growth. The analysis in this chapter suggests that the Polish economy is less open to trade than comparable countries—a finding that warrants further research, including into the underlying reasons.

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