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Czech Republic: Selected Issues

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CZECH REPUBLIC

Selected Issues

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Approved by the European I Department

January 30, 1998

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Czech Republic: Summary Indicators

Area	
Size (sq. km.):	78.8
Agricultural land (in percent of total area):	52
Population per sq. km.:	132
Population characteristics (1995):	
Total population (in millions):	10.32
Average annual rate of growth during 1990-95 (percent change):	-0.1
Population age structure (in percent):	
0-14	19.33
15-64	70.28
65 and over	10.39
Life expectancy at birth (in years):	
Male	69.9
Female	76.9
Crude birth rate (per thousand):	10.3
Crude death rate (per thousand):	11.4
Per capita income (in U.S. dollars):	4,888

	1993	1994	1995	1996	1997 Est.
			(Percentage change)		
Real sector					
Real GDP	0.6	2.7	5.9	4.1	1-1½
Consumer prices					
Period average	20.8	10.0	9.1	8.8	8.5
12-month change	18.2	10.2	7.9	8.6	10.0
Real wages, period average	3.7	7.7	7.7	8.5	3.0
Employment	-1.6	0.8	2.6	0.6	...
Unemployment, period average					
(Percent of labor force)	2.9	3.3	3.0	3.1	4½
			(In percent of GDP)		
Fiscal operations 1/					
Revenues	46.7	46.4	45.0	42.9	41.1
Expenditures	45.4	46.0	45.7	43.9	42.8
Balance	1.3	0.4	-0.7	-1.0	-1.7
Excluding use of privatization revenues	0.5	-1.2	-1.8	-1.2	-2.1
Gross debt (central government)	15.8	13.8	11.5	10.2	10.9
	(12-month change in percent of beginning of period broad money)				
Money and credit, end of period					
Broad money	19.8	19.9	19.8	9.2	7.9
Credit to enterprises and households	18.9	16.6	12.7	9.9	9.4
Net foreign assets	9.5	11.2	10.6	-1.7	6.2
Velocity	-6.3	5.2	-2.8	2.8	0.9
			(In percent)		
Interest rates 2/					
Average lending rate	14.0	12.8	12.7	12.0	13.2
Average deposit rate	6.9	6.9	6.9	6.7	7.7

Czech Republic: Summary Indicators (cont.)

	1993	1994	1995	1996	1997 Est.
			(US$ billions)		
Balance of payments					
Merchandise exports	14.2	16.0	21.5	21.7	22.2
Volume change (in percent)	11.4	6.5	15.5	0.0	14.0
Merchandise imports	14.7	17.3	25.1	27.6	26.5
Volume change (in percent)	13.4	20.2	26.8	11.1	6.0
Trade balance	-0.5	-1.3	-3.7	-5.9	-4.4
Current account	0.5	-0.7	-1.4	-4.3	-3.3
(Percent of GDP)	1.5	-1.9	-2.7	-7.6	-6.3
Gross official reserves (End of period)	3.9	6.2	14.0	12.4	9.8
External debt in convertible currencies (End of period)	8.5	10.7	16.5	20.8	21.8
External debt service ratio in convertible currencies (Percent of exports of goods and nonfactor services)	8.4	13.1	9.2	10.7	16.6
			(Percent change)		
Exchange rate (period average)					
Nominal effective	4.2	-0.2	-0.9	1.0	-3.7
Real effective (ULC-based)	15.5	9.1	3.2	4.5	2.4 a/
Memorandum item:					
GDP in nominal terms					
(In US$ billions)	34.4	39.6	50.4	56.2	52.0
(In CZK billions)	1,002.3	1,143.0	1,338.9	1,524.7	1,650.0

Sources: Data provided by the Czech authorities; and staff estimates.

1/ Includes central government, local authorities, National Health Fund.
2/ Average rate in last quarter.
a/ January-September 1997.

I. Introduction

1. After achieving early and decisive progress in stabilization and structural reform, the Czech Republic has experienced large **macroeconomic imbalances** in the last few years. Large capital inflows in 1994–96 complicated monetary management under a fixed exchange rate regime and stimulated domestic demand, while weak corporate governance fueled wage growth. As a result, the **current account deficit** widened sharply, to 7½ percent of GDP in 1996, and **inflation** persisted at levels higher than in the main trading partners. Real GDP growth picked up strongly in 1995 to nearly 6 percent, but slowed to about 4 percent in 1996 (Summary Indicators and Figure 1). The **investment ratio** rose mainly on account of infrastructural and environmental investment, while the **savings ratio** declined owing to the rapid growth of real wages, which eroded enterprise savings and also encouraged consumer spending on the expectation that these gains would be sustained.

2. The external position deteriorated further in the first quarter of 1997, leading to a foreign exchange crisis in late-May 1997. Fiscal contraction, monetary tightening, increased exchange rate flexibility and strengthened foreign demand all contributed to restoring order in the foreign exchange market and to a narrowing of the external deficit in the second half of the year. However, developments in the domestic economy were on the whole disappointing in 1997.

3. Investment was almost stagnant in the first quarter, and declined as the year progressed. This kept **real GDP growth** to an estimated 1–1½ percent in 1997, despite a strong recovery of exports. Consumption also weakened in the second half of 1997. Extensive floods in July caused physical damage valued at 4 percent of GDP and lowered output growth by ½ percentage point. Partly as a result of the economic slowdown and further progress in restructuring, **unemployment** rose to 5¼ percent at end-1997, from 3½ percent a year ago.

4. The 12-month rate of **inflation** reached 10 percent at end-1997, up 1½ percentage points from a year ago, owing to larger increases in administered prices. "Core" inflation—which excludes administered prices and the effects of indirect tax increases—was 7½ percent, little changed from the previous year, as the effects of the koruna depreciation and of the wage deceleration roughly offset each other.

5. The pace of **wage** growth slowed in 1997, but remained high in relation to productivity gains (see Chapter II). Specifically, nominal wage growth in the *enterprise* sector decelerated by an estimated 4 percentage points to 13 percent in 1997—with a slight deceleration also between the two halves of 1997. This reflects several factors: lower enterprise profitability, rising unemployment, and a relatively low inflation rate (under 7 percent) in early 1997 when annual wage agreements were concluded. As a result of rising unit labor costs and the nominal exchange rate appreciation, **enterprise profitability** and **external competitiveness** worsened further in 1997 Q1. The subsequent decline in relative

unit labor costs appears to have restored competitiveness to about its 1995 level, but data deficiencies may overstate the improvement. Growth in *economy-wide* nominal wages is estimated to decelerate faster—by almost 6½ percentage points to 11½ percent in 1997—owing to a strict incomes policy in the budgetary sphere.

6. The **current account deficit** narrowed to about 6–6½ percent of GDP in 1997, with all of the improvement concentrated in the second half of the year when the deficit was about 5 percent of GDP (see Chapter VI). **Exports** began to grow rapidly from 1997 Q2 after five quarters of sluggish performance, mainly reflecting the recovery of economic activity in western Europe, the sharp deceleration of domestic demand, and the beneficial effect of previous foreign direct investment. The growth of **imports** decelerated sharply—notwithstanding a steep rise in exports with a large import component—suggesting that imports of consumer and, especially, investment goods have been compressed after having risen rapidly for several years. An import deposit scheme, in effect during April-August 1997, restrained imports of consumer goods, but probably not by much.

7. The progressive widening of the current account was eventually perceived by the market as unsustainable, and resulted in a foreign exchange crisis in May 1997. Depreciation pressures on the koruna first appeared in March 1997 and built up gradually amid market concerns about the widening external deficit and the emergence of a significant fiscal imbalance. As confidence ebbed in April-May 1997, the authorities announced two policy packages that aimed at restoring balance in the State Budget and at accelerating structural reform. Nevertheless, there was a **speculative attack**, triggered by contagion effects from other emerging markets and the government's public calls for a loosening of monetary policy.[1] On May 27, 1997—after 10 days of unsustainable foreign exchange intervention and steep increases in interest rates—the CNB abandoned the exchange rate band for the koruna, which depreciated by over 10 percent below its (former) central parity in the framework of a **managed float** (see Chapter IV). During June-September, 1997, the CNB took advantage of appreciation pressures, which reflected an unwinding of speculative positions, to gradually lower interest rates and strengthen its foreign reserves. During the last quarter of 1997, political uncertainty and contagion effects from abroad contributed to depreciation pressures, which prompted temporary increases in interest rates and intervention in the foreign exchange market by the CNB. More recently, the market has reacted relatively favorably to the appointment of the new cabinet, while the intensification of the Asian crisis has had little effect on the Czech Republic. As a result, conditions in the foreign exchange market remained relatively calm as of late January 1998.

8. Overall, the **capital account** is estimated to have recorded a surplus of 3 percent of GDP in 1997; of this, almost one half was in the form of nondebt capital inflows. A net short-term capital outflow of about 2 percent of GDP is estimated for 1997, somewhat larger than

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[1]The first round of expenditure cuts (1¾ percent of GDP) was announced in April; the second round of expenditure cuts (¾ percent of GDP) was announced at the peak of the crisis.

in 1996. Total gross **external debt** is estimated at US$22 billion at end-1997, equivalent to about 40 percent of GDP; of this, US$7¼ billion was short term, equivalent to 42 percent of the banking system's short-term foreign assets. The debt service ratio remains relatively low and the Czech Republic enjoys an investment grade sovereign rating by foreign agencies. **Official reserves** fell to US$9¾ billion at end-1997 (from US$12½ billion a year ago), equivalent to 3½ months of current account payments and 1⅓ times the level of short-term external debt.

9. The mid-year **fiscal** tightening and the continued tight **monetary** policy stance were the main factors contributing to the external improvement. The **general government deficit** was contained to an estimated 2 percent of GDP in 1997, compared to a deficit of 1¼ percent of GDP in 1996, notwithstanding the impact of floods (about 1¼ percent of GDP) and lower than expected economic activity (see Chapter III). This was made possible by expenditure cuts of 2½ percent of GDP, announced in April-May, which helped improve the *underlying* fiscal balance (excluding flood costs) by 2½ percentage points of GDP (5 percentage points at annual rates) between the two halves of 1997.

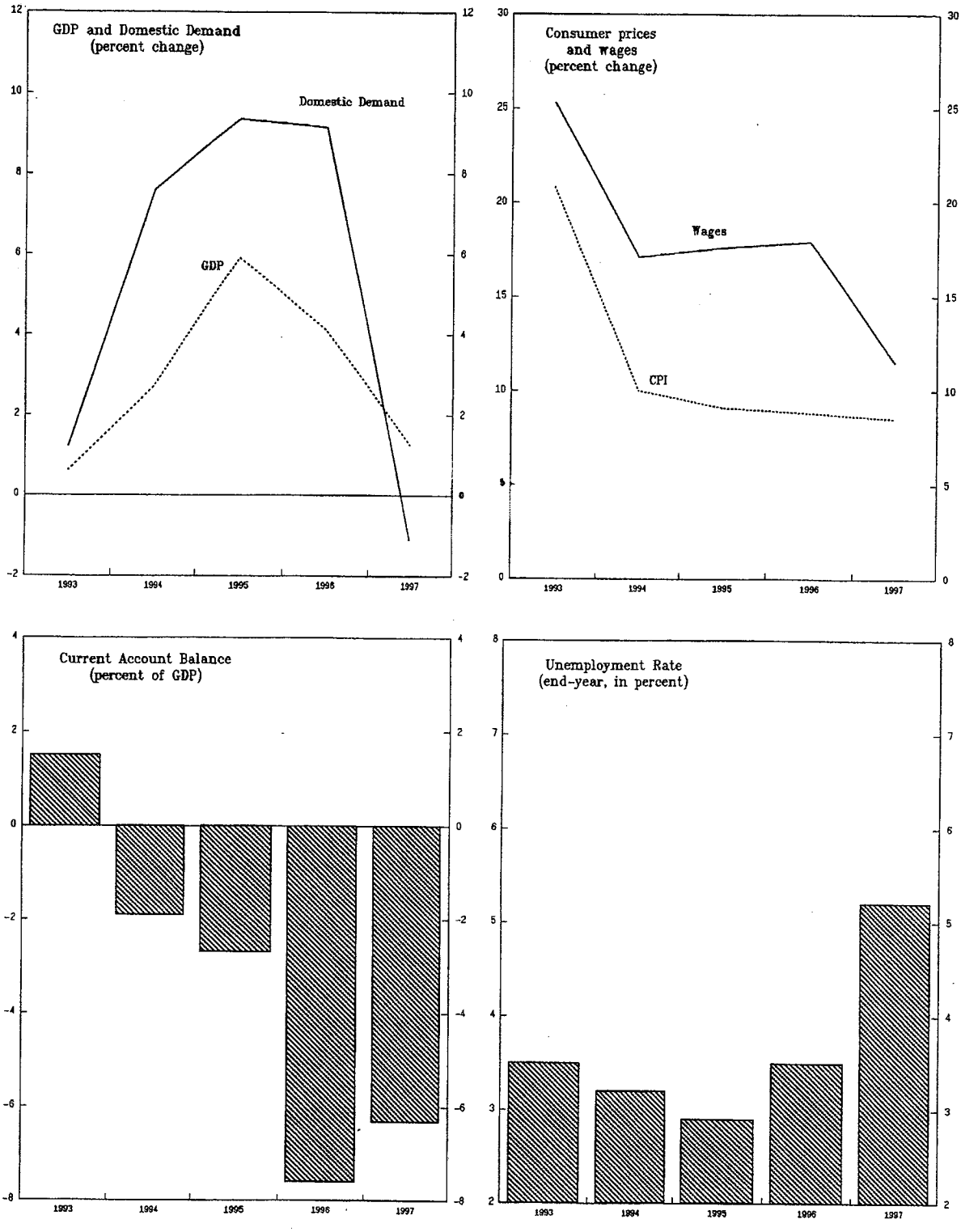
10. Twelve-month **broad money** growth was kept within or below the 7–11 percent target range throughout 1997—down from almost 20 percent in mid-1996. This was associated entirely with lower capital inflows: the CNB's net domestic assets turned from strongly contractionary until early 1996 to expansionary on account of lending related to bank restructuring and a reversal of sterilization operations through a reduction in outstanding CNB bills. **Interest rates** in the interbank market—and to a lesser extent the lending and deposit rates—have trended upwards since the Spring of 1997 in line with increased market uncertainty and the new policy aim of maintaining a relatively stable exchange rate of the koruna against the DM.

11. The pace of enterprise restructuring and financial sector reform has been sluggish. As a consequence of voucher privatization in 1991–94, diffuse ownership and residual state shareholdings have preserved for the state a controlling interest in major enterprises and banks, and progress toward effective privatization of these entities has been relatively slow. (According to official estimates, over 70 percent of GDP in 1997 originated in the private sector, which however is defined to include partially privatized, but still state-controlled, enterprises.) The resulting weak **corporate governance**—in conjunction with a relatively low unemployment rate—have contributed to rapid real wage growth. Furthermore, sluggish economic activity and high real lending rates (about 7 percent in terms of producer prices) have adversely affected the **financial position of banks**, and further worsened the quality of their loan portfolios. The central bank has been involved in restructuring of the small banks over the past few years through mergers, liquidations and capital injections to clean up portfolios (Chapter V). In January 1998, the government reached agreement on the sale of the state's remaining 36 percent share in one of the four major banks. Technical preparations are being made for the sale of the state's stake in the three other major banks.

Figure 1

CZECH REPUBLIC

SELECTED ECONOMIC INDICATORS, 1993-97



Sources: Czech Statistical Office; and Fund staff estimates.

II. Inflation and its Determinants in the Czech Republic[2]

A. Overview

12. Following a sharp increase in the price level after the large devaluation and price liberalization at the outset of the reform process in 1991, inflation in the Czech Republic has persisted at about 9–10 percent a year. The resilience of inflation partly reflects continued price deregulation, although progress in reducing underlying inflation has also been elusive despite the use of the exchange rate as a nominal anchor until early 1997, and generally prudent financial policies. This has been related to the large capital inflows in 1994–95, which complicated monetary management and accommodated wage increases far in excess of productivity growth throughout the period. These wage pressures in turn have resulted from weak corporate governance associated with a slow pace of enterprise restructuring and privatization. Eventually, speculative pressures related to widening macroeconomic imbalances forced the nominal anchor to be abandoned, fueling inflation in the second half of 1997.

13. This chapter examines recent developments in inflation and its key determinants in the Czech Republic, with particular focus on the role of wages. A simple analytical framework is presented that relates inflation to wages, import prices, and money, and the interaction of inflation with these variables is then examined empirically in the context of a vector autoregression (VAR) model. Consistent with previous studies of inflation in transition economies, the findings in this chapter confirm the critical influence of wages, exchange rate changes, and money growth, and point to the need for a tight grip on wage policy, speeding up of enterprise restructuring and privatization, and continued restrained financial policies, if progress is to be made in tackling the resilience of inflation.

B. Ascertaining Developments in Underlying Inflation

14. In analyzing inflation developments in the Czech Republic one would ideally look at *"underlying"* inflation defined as changes in consumer prices excluding changes in regulated prices and indirect taxes (and potentially also food prices which are more supply determined and volatile), as well as reversible or discrete effects of exchange rate changes. Such an "optimal" measure of inflation would be the best indicator of the stance of macroeconomic policies. However, it is difficult to estimate the effect of changes in the exchange rate on traded goods prices and impractical to focus only on nontraded (and nonregulated) prices, as these are a relatively small share of the consumer price index. One may instead look at *"core"* inflation, which excludes only the effect of changes in regulated prices and indirect taxes (and potentially food prices). Such a measure could be compared with developments in producer prices as an indicator of changes in nontraded goods prices versus traded goods

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[2]Prepared by Thomas Laursen.

prices or the real effective exchange rate. Developments in the different price indices during the period 1994–97 are illustrated in Table 1 and Figure 2.

Table 1. Czech Republic: Developments in Inflation, 1994–97

(In percent)

	Weights (1997)	1994	1995		1996		1997 Est.	
		eop	eop	ave.	eop	ave.	eop	ave.
Consumer prices	100.0	9.7	7.9	9.1	8.6	8.8	10.0	8.4
Of which:								
Regulated prices	21.0	9.0	9.7	7.1	11.2	10.0	19.3	15.9
Core prices	79.0	9.9	7.3	9.8	7.8	8.4	7.5	6.4
Of which:								
Food prices	32.7	12.0	5.4	10.3	7.9	8.3	6.2	4.9
Other	46.3	8.3	8.8	9.3	7.6	8.5	8.4	7.4
Producer prices (industry)		5.6	7.2	7.6	4.4	4.8	5.5	5.0
Memorandum item: Core CPI/PPI		4.1	0.1	2.0	3.3	3.4	1.9	1.3

Sources: Czech National Bank; and staff estimates.

15. Core inflation (including food prices and broadly corresponding to the Czech National Bank's new "net" inflation measure)[3] remained around 7½ percent in 1995–97 (on an end-of-period basis) following a decline from 10 percent in 1994, while the annual average rate declined from 10 percent to 6½ percent during the period. The tendency for some moderation of core inflation over the period was influenced by a declining trend in food prices, which rose by more than 10 percent in 1995 and by less than 5 percent in 1997. Excluding food prices, core inflation remained around 8 percent on an end–period basis, while the annual average declined by about 2 percentage points, to 7½ percent during 1995–97. However, developments in core inflation were significantly influenced by fluctuations in the exchange rate beginning in mid-1996 and as such were a misleading signal of changes in underlying inflation. Thus, the temporary and—with hindsight—unsustainable appreciation of the exchange rate from mid-1996 to early 1997 led to an exaggerated impression of a decline in underlying inflation when looking at the measure of core inflation, while the completion of

[3]In the early years of the transition, there was a catch-up phase for food prices as the Government's agricultural policies were liberalized. While food prices continue to show considerable volatility, prices are now closer to market levels.

the pass-through of the subsequent exchange rate correction resulted in a closer convergence of underlying and core inflation.

16. Producer prices increased somewhat more slowly than core prices, at a rate of 5½ percent to 6 percent a year with the ratio of core prices to producer prices rising at an average rate of around 2 percent a year in 1995–97. However, this underestimates the extent of real appreciation, as core inflation includes traded goods.

17. Developments in overall CPI have reflected continued large adjustments of regulated prices, which were raised at a faster rate than prices of nonregulated goods in recent years.[4] Contrary to the declining tendency in core inflation, CPI inflation remained virtually unchanged at an annual average rate of around 9 percent in 1995–97. Year-on-year CPI inflation temporarily declined to 6–7 percent in early 1997 from almost 10 percent in mid-1996, largely owing to delays in the adjustment of administered prices, before climbing back to 10 percent at the end of 1997 following the substantial increase in regulated prices in July 1997, as well as the currency depreciation.[5]

C. Determinants of Inflation: Wages, Import Prices, and Money

18. Studies of inflation in transition economies have generally focused on a combination of supply or cost-push pressures, demand-pull factors, and structural changes or rigidities.[6] The key cost push elements identified were wages and currency depreciations. Wage growth in excess of productivity growth—often attributable to real wage rigidity and weak corporate governance—could explain nontraded goods inflation, but also a rise in traded goods prices faster than world prices (in domestic currency) due to cushions arising from large up-front exchange rate adjustments. At the same time, however, there may also have been considerable scope for reduced profit margins. Currency depreciations have raised the prices of tradables, both directly through imported consumer goods and indirectly through imported

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[4]The weight of administratively set prices in the consumer basket is about 15 percent, and another 5 percent or so consists of goods subject to "substance-based" price regulation. The former group comprises natural gas (1.1 percent), electricity (2.8 percent), central heating for consumers (3.6 percent), tele- and radio communication (0.8 percent), railroad passenger tariffs (0.3 percent), rents in non-cooperative apartments (2.6 percent), and health related goods and services (3.7 percent). Substance-based price regulation covers water, central heating for producers, bus passenger tariffs and urban public transport, and postal tariffs.

[5]Maximum consumer prices on central heating were raised by 39 percent and on gas and electricity by 15 percent while rents in non-cooperative apartments were raised an average of 50 percent in July contributing a total of 3.2 percentage points to the inflation rate for that month. Other significant price increases included postal tariffs (28 percent) in April and railroad passenger tariffs (33 percent) in September 1997.

[6]See for example Coorey et al. (1996) and Cottarelli et al. (forthcoming).

intermediate and investment goods. Demand-pull factors have often been related to monetary expansion to finance fiscal deficits, or caused by large, nonsterilized capital inflows. Finally, structural factors have included price deregulation and general supply- and demand-induced relative price changes, which have had an inflationary impact in the presence of downward nominal rigidities.

19. The focus in this section will be on the cost-push side of inflation, with particular emphasis on the role of wages and unit labor costs and, more recently, exchange rate fluctuations, while demand pressures will be proxied by monetary developments, which appear to have been more important for inflation in the Czech Republic than, for example, changes in the stance of fiscal policy.[7] The impact of price deregulation is eliminated by focusing on core inflation, and the potential impact of market-induced relative price changes is ignored on the grounds that this factor has probably been less important in recent years.

Wages, Productivity, and Unit Labor Costs

20. Wages in the Czech Republic were subject to controls from the beginning of the transformation process until mid-1995, but the removal of these controls had little immediate effect on wage developments: Nominal wage growth during 1991–96 persisted at 18–20 percent, before declining to an estimated 11–12 percent in 1997. Following a large decline in real wages in 1991 in connection with the jump in the price level, real wages increased rapidly during 1992–94, as wage guidelines typically allowed for nominal wage increases in line with expected inflation plus productivity growth; moreover, they were neither strictly monitored nor enforced. The reason for the removal of the wage controls was not only their perceived ineffectiveness, but also their redundancy as the privatization process was considered more or less completed. However, in reality the state retained direct control over the "strategic" enterprises and indirectly over a large part of the economy through the state-controlled banks. Wage growth continued to be very buoyant in 1995–96, with real wages increasing by around 8 percent a year (Table 2; Figure 3). There was a significant moderation in real wage growth, to around 3 percent in 1997, reflecting the tightening of monetary policy from mid-1996 (see Chapter IV), rising unemployment, a relatively low level of inflation early in the year when most wage contracts were negotiated, and the implementation of a strict incomes policy in the government sector from mid-year.

21. Average wage growth was somewhat higher in the entrepreneurial sphere than in the budgetary sphere during 1995–97, as higher wage increases in the budgetary sphere in 1996 were more than offset by the slowdown in 1997.[8] The relatively large wage increases in the

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[7]In the long run one would of course expect a close relationship between money and inflation on the basis of the quantity theory, while velocity can be unstable in the short run.

[8]In addition to private and foreign owned firms, the entrepreneurial sphere includes state-

(continued...)

budgetary sector in 1996 reflected, inter alia, the introduction of a fourteenth salary for government workers, while the sharp deceleration in 1997 was partly the result of the abolition of this additional salary. One can interpret these developments as the government attempting to narrow the gap in the wage level with the private sector in 1996, but these large wage increases fueled private sector wage demands the following year. Anecdotal evidence suggests that wage behavior in the budgetary sector has a considerable demonstration effect for the entrepreneurial sector.

Table 2. Czech Republic: Developments in Nominal Wages, 1995–97 1/

(Percent changes)

	Share of Employment 2/	1995	1996	1997 Est.
Overall	100	17.6	17.9	11½
Entrepreneurial sphere	77	17.7	17.1	13½
Private	52	17.7	16.9	13
State-controlled enterprises 3/	25	17.8	17.5	14
Of which: state-owned enterprises	9	18.8	17.9	14
Budgetary sphere	23	17.3	20.6	5
Of which: central government	17	17.8	20.6	5
Memorandum item: Real wages (CPI-based)	n.a.	7.8	8.4	3
(PPI-based)	n.a.	8.7	12.5	6

Sources: Czech Statistical Office; and staff estimates.

1/ Monitored sector of the economy.
2/ Based on shares of the respective sectors in employment in the monitored sector.
3/ Including enterprises with mixed ownership.

22. Within the entrepreneurial sphere, wages rose at a faster rate in state-controlled, and especially state-owned enterprises, than in the private sector, despite the fact that the latter includes foreign-owned companies and joint ventures, which traditionally have granted relatively large wage increases on the basis of higher productivity growth and profitability.

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[8](...continued)
owned enterprises and enterprises of mixed ownership (not necessarily with state control, although this is likely to be the case in most instances given the diffuse ownership structure and the fact that state-controlled banks control the largest investment funds that in turn manage most of the shares from the voucher privatization scheme).

This reflects the higher degree of unionization and more widespread existence of collective (sectoral or firm-specific) wage agreements in the state-controlled enterprises, and also the weaker corporate governance as government representatives may have been reluctant to enforce tough wage policies. Wages in industry have evolved more or less in parallel with the entrepreneurial sector in general (Table 3; Figure 4), but with industrial producer prices rising more slowly that consumer prices, real product wages increased by more than 10 percent in 1995–96, before moderating to 6 percent in 1997.

23. With the slowdown in economic growth in 1996 and notably 1997 being accompanied by slower employment growth (in 1997 employment contracted), productivity growth in the economy as measured by real GDP per employee remained broadly stable but moderate, at around 3 percent a year. With wages rising much faster as described above, unit labor costs increased at a very high rate of some 14 percent in 1995–96 before moderating to about 9 percent in 1997 on account of the slowdown in wage growth. In the monitored sector of industry (large enterprises), productivity growth based on real gross sales was much more impressive, at approximately 10 percent a year owing to robust sales growth and continued labor shedding. However, such a rate of growth in productivity would not seem to be consistent with economy-wide productivity developments. Also, with real product wages rising at approximately the same rate, it would imply that the share of labor in output had remained broadly stable. This contradicts unpublished data from the Czech Statistical Office, which shows that the share of wages in value added in industry increased from 34.0 percent in 1995 to 37.2 percent in 1996, broadly similar to developments in the overall nonfinancial enterprise sector. An alternative index of physical production shows that final output grew by 2–3 percentage points less than gross sales in 1996–97, but even this measure is likely to overstate value added at constant prices, owing to, inter alia, evidence of increasing reliance on intermediate goods. Thus, productivity growth may have been closer to 6–7 percent and unit labor cost increases about 8–9 percent.

24. As suggested in the discussion above, wage developments are likely to have been affected by changes in monetary and credit conditions as well as the rate of unemployment. Figure 5 traces the relationship between developments in industrial wages, unit labor costs, and money. There would appear to be a positive correlation between wage (unit labor cost) and money growth, seemingly with a short lag from wages to money. Although it is necessary to be very careful with such an interpretation, and it is likely that the direction of the causation may have changed over time, it is consistent with the hypothesis that nominal pressures emanate in the labor market rather than the money market. Figure 6 traces the

Table 3. Czech Republic: Developments in Productivity, Wages, and Unit Labor Costs, 1995–97

(Percent change)

	1995	1996	1997 Est.
Economy-wide			
Real GDP	5.9	4.1	1.2
Employment	2.6	0.6	-1.0
Productivity	3.2	3.5	2.2
Nominal wages 1/	17.6	17.9	11.5
Unit labor costs	14.0	13.9	9.1
Industry 1/			
Real output (sales at constant prices)	8.7	6.4	4.5
Employment	-3.1	-3.9	-4.5
Productivity	12.2	10.7	9.4
Nominal wages	17.0	16.7	13.0
Unit labor costs	4.3	5.4	3.3
Memorandum item:			
Index of physical production in industry	n.a.	3.6	2.6

Sources: Czech Statistical Office; and staff estimates.

1/ In the monitored sector of the economy.

relationship between nominal wage growth and unemployment.[9] As expected, the two variables appear to be negatively correlated, with higher unemployment associated with lower wage increases. This is true both over time and between different regions. For example, in Prague, where unemployment has been virtually nonexistent, wage growth has been much more rapid than in the northern provinces, where unemployment has been high.[10]

[9]The Phillips curve in Figure 6 is based on pooled time series and cross-section data from the different regions in the Czech Republic.

[10]In the first half of 1997, wage growth in Prague was 16 percent and unemployment less than 1 percent, while in Moravia wages increased less than 9 percent while unemployment was close to 7 percent.

Import Prices and Money

25. In studying developments in import prices expressed in local currency, one may look at estimates of actual import price indices, or assume that changes in import prices correspond to movements in foreign wholesale prices corrected for exchange rate changes. The latter approach is followed here, as trade price indices are only available on a quarterly basis, but in practice the two are not qualitatively different and the broad orders of magnitude are the same. Import prices were rising very slowly, and at a decelerating rate through mid-1996, against the background of declining U.S. and German inflation and a broadly stable exchange rate for the koruna (Figure 7). From mid-1996, import prices started declining in line with the appreciation of the exchange rate, culminating in early 1997 with import prices down by about 4 percent compared with the year before. Subsequently, import prices shot up as the exchange rate depreciated and reached a level 14 percent higher than the year before by September 1997.[11] External developments are discussed in more detail in Chapter VI.

26. The money supply (M2 adjusted) increased at an annual rate of almost 20 percent through mid–1996 before it decelerated quickly, reflecting the tightening of monetary policy. The year-on-year growth rate reached a low in early 1997 of about 6 percent, but picked up slightly to 8–9 percent during the rest of the year. Velocity was broadly stable during the period, with a small decline through mid–1996 offset by a small increase since then, while real income growth slowed in 1996 and especially in 1997. Monetary developments are discussed in more detail in Chapter IV.

27. Figure 7 (top panel) traces the evolution of core inflation, unit labor costs in industry, and import prices. As expected, a positive correlation can be detected between unit labor costs and inflation, with an apparent lag from changes in the growth rate of labor costs to inflation. Also, the figure suggests a rapid and strong spill-over from movements in the exchange rate to inflation. The lower panel compares developments in inflation with broad money growth, but the expected positive correlation is not obvious (although there is some sign of monetary policy accommodation).

D. Empirical Analysis

28. This section presents an econometric study of inflation and its determinants in the Czech Republic. Evidence from earlier studies of inflation in the Czech Republic as well as in other transition economies is presented in Box 1 below. Annex I provides an analytical framework for the empirical model that is being used. In addition to the considerations above, both the empirical evidence from studies of inflation in transition economies and the analytical model based on a simple two-sector model of traded and nontraded goods support

[11]This may overestimate the increase in import prices due to switching and discounting (estimated import prices based on trade data were up about 8 percent in September.

Box 1: Empirical Evidence on Inflation in Transition Economies

Empirical studies of inflation in transition economies have typically linked inflation to both cost-push or supply-side variables (notably wages or unit labor costs and import prices) and demand-side variables (typically money). This has generally not been done in a formal way through a careful specification of the underlying economic model and its behavioral relations, but rather in a more ad hoc fashion, examining long- and short-run relationships between the variables, in some cases on the basis of a simple mark-up price-wage model.

In a comprehensive study of inflation in **transition economies,** Coorey et al. (1996) focus on the role of relative price adjustments. On the basis of a simple two sector model of traded and nontraded goods, they estimate a static, semi-reduced form model linking inflation to past inflation, money growth, unit labor cost developments, real exchange rate changes, and indicators of relative price adjustment. For Eastern and Central European countries, they find that money and wage growth are the most important determinants of inflation and that there is a considerable degree of inflation inertia (elasticities range from 0.2–0.4). On the other hand, real exchange rate changes are less significant, as is the contribution of relative price changes. For the Czech Republic, the authors note that relative price changes were significant in the early part of the transition process, contributing to upward pressures on inflation, as a small number of large relative price increases co-existed with a large number of small price reductions.

The analysis of inflation in **Poland** in Pujol et al. (1996) similarly focused on the importance of relative price adjustments in its "real sector" story of inflation. The role of wage-price indexation and other structural factors, such as the absence of hard budget constraints on enterprises limiting the effectiveness of monetary policy, was also highlighted. Specifying a standard mark-up price model, with the mark-up dependent on capacity utilization, the authors examine the long-run relationship between inflation, wage growth, and exchange rate changes as well as the short-run dynamics between these variables in a cointegration/error correction framework. The results indicated that consumer price inflation was driven by developments in producer prices, wages (unit labor costs), and exchange rate changes, and that wages responded quickly to changes in prices (and mark-ups to changes in output), while the pass-through of exchange rate adjustments was rather slow. The 1997 paper on recent economic developments stressed the role of a firmer exchange rate policy in reducing inflation since 1995.

For **Hungary,** van Elkan (1996)—on the basis of an informal discussion of cost-push and demand-pull inflation factors—for the period 1990–95 finds the existence of a long-run (cointegrating) relationship between inflation, wages, money, and the exchange rate in which each explanatory variable has about equal importance and inflation increases at a slightly faster rate than the other nominal variables. Estimation of a short-run, dynamic error correction model indicated that deviations in inflation rates from its long-run path were corrected relatively fast and that changes in the rate of inflation also depended positively on inflation shocks in previous periods (inertia).

Finally, for the **Czech Republic** during 1991–95, Dayal-Gulati (1996) similarly found a long run, cointegrating relationship between inflation, unit labor costs, money, and import prices, with unit labor costs as the dominant factor. That study did not lend direct support to the hypothesis of monetary accommodation of inflation, but an indirect channel was found through credit expansion. In a more recent study, Holub (1997) focused on the role of exchange rate movements following the widening and subsequent abandonment of the exchange rate band within a VAR framework that also included unit labor costs and money. It was shown that changes in the pace of exchange rate adjustment had a relatively quick impact on inflation, peaking after three months, but that the cumulative pass-through effect was limited to about 25 percent. Causality analysis supported the notion that wages, import prices, and money drive inflation rather than the other way around. One may finally note that the Czech National Bank, in its annual report for 1996, found a stable, cointegrating relationship between inflation and the money supply.

the relevance of wage growth, exchange rate changes, and money growth in accounting for inflation.

29. The empirical analysis focuses on recent developments in core inflation and the relation to changes in unit labor costs, import prices, and money. The analysis is constrained mainly by the short time period for which data on core inflation are available (since end-1994) and the structural shift in the exchange rate regime during the period. This means that great caution must be exercised in interpreting the empirical results, which are suggestive at best. Rather than estimating the static model suggested in Annex I, we specify—in line with several recent studies—a vector autoregression (VAR) model that allows for the interdependent nature of the variables under consideration and analysis of the dynamic response of the different variables to various shocks:

$$\Delta y_t = A + \sum_{i=1}^{k} B_i \Delta y_{t-i} + \epsilon_t, \qquad (1)$$

where y_t is a vector of variables [π_t, m_t, w_t, and e_t], with π_t denoting core inflation, m_t growth in broad money, w_t, growth in industrial unit labor costs, and e_t, changes in import prices; and A and B are vectors (matrices) of coefficients.

30. Determination of the appropriate lag length (k) is fundamental to the VAR analysis. While economic-theoretical considerations would argue for including relatively long lags (e.g. between money/wage growth and inflation), the limited data availability restricts the analysis to a maximum of five lags.[12] This lag length is found to be preferable on the basis of different model selection criteria (Akaike, Schwarz). Ideally, one needs to examine the stationarity of the data as well as any potential long run (cointegrating) relationship between the variables; however, such an approach is obviously questionable, given the short time series and general transformation of the economy, including the structural shift in the exchange rate regime. Differencing data to potentially achieve stationarity is associated with a loss of information, and imposing a questionable long-run relationship between variables may bias the short-term analysis. It therefore seems preferable to estimate an unrestricted model in levels (annual growth rates).[13] For the sake of completeness, the unit root properties of the data and cointegration tests are examined in Annex II along with the estimation of a

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[12]The model is estimated using monthly data (year-on-year growth rates) for the period 1994:12 to 1997:09. Data on core inflation is obtained from the CNB, while unit labor costs are estimated on the basis of industry data from the CSO. Import prices are proxied by U.S. and German wholesale prices and changes in the basket exchange rate.

[13]This was also the approach adopted by Ramaswamy et al. (1997) in their analysis of monetary policy shocks in the EU.

vector error correction (VEC) model that takes into account the implied cointegrating nature of the variables.

31. While the parameter estimates of the VAR are by nature difficult to interpret, one may look at the short-run impact of shocks to the different variables in the model in the form of impulse response functions. These trace the effect on current and future values of the endogenous variables of a one standard deviation change in one of the innovations. While the interpretation of innovations is straightforward if these are not correlated, ambiguity arises when this is not the case. A commonly used method of dealing with this problem is to attribute all of the effects of any common component to the variable that comes first in the VAR system (in this case, inflation).[14] This is the approach taken here, but one must be cautious in interpreting the impulse response functions, as they will depend on the order of the equations.[15]

32. With this in mind, the impulse responses to the various innovations in the model suggest the following (Figure 8): Inflation, as expected, responds positively to a wage growth shock, with the maximum impact occurring after 9–10 months and fading out after about one year. Changes in the rate of depreciation have a more immediate, and significant impact on inflation, with the peak materializing after 4–5 months and the shock dissipating after 6–7 months. The pass-through (cumulative impulse response) seems to be about 35 percent. This is consistent with the observation of the impact of the exchange rate appreciation from mid-1996 to early 1997, but it is on the high side judging from the impact of the exchange rate depreciation in 1997.[16] This finding might be explained by the weaker demand conditions in mid–late 1997 than in late 1996–early 1997. Finally, a money shock has a small, but steady impact for about eight months. It is also interesting to note—in line with the real wage rigidity hypothesis—that wages respond positively to price innovations, peaking after about 6 months and vanishing after about 10 months, while there is no evidence of any spill-over from faster money growth. Conversely, higher wage growth has a significant and persistent impact on money growth in line with our hypothesis that nominal pressures emanate from the labor market.

33. The VAR analysis above casts light only indirectly on the nature of the causality between the different variables. As can be seen from Annex II, Table 3, which presents pairwise Granger causality tests, there is some evidence that causality runs from unit labor

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[14]More technically, the errors are orthogonalized by a Cholesky decomposition so that the covariance matrix of the resulting innovations is diagonal.

[15]Alternative methods of identifying the structural shocks are discussed in e.g. Ramaswamy et al. (1997). Agenor et al. (1997) adopts a recently developed generalized VAR approach to overcome this problem in their study of inflation in middle income countries.

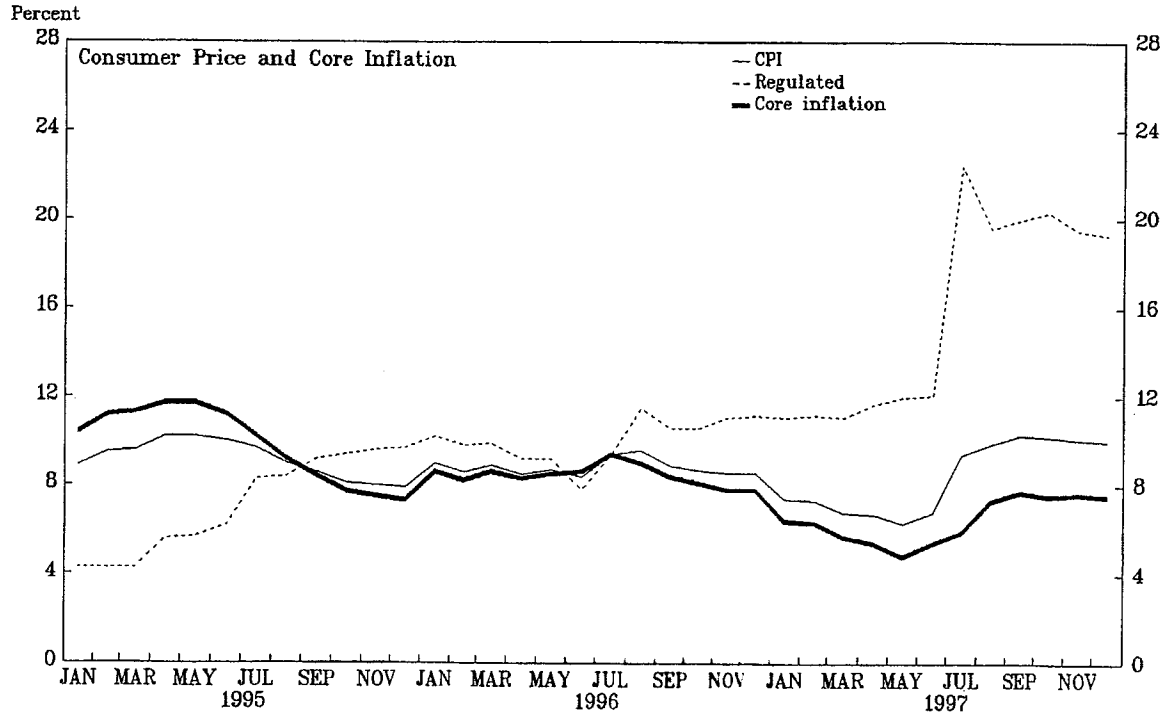
[16]It is also somewhat higher than reported by Holub (1997), who found a pass-through of about 25 percent.

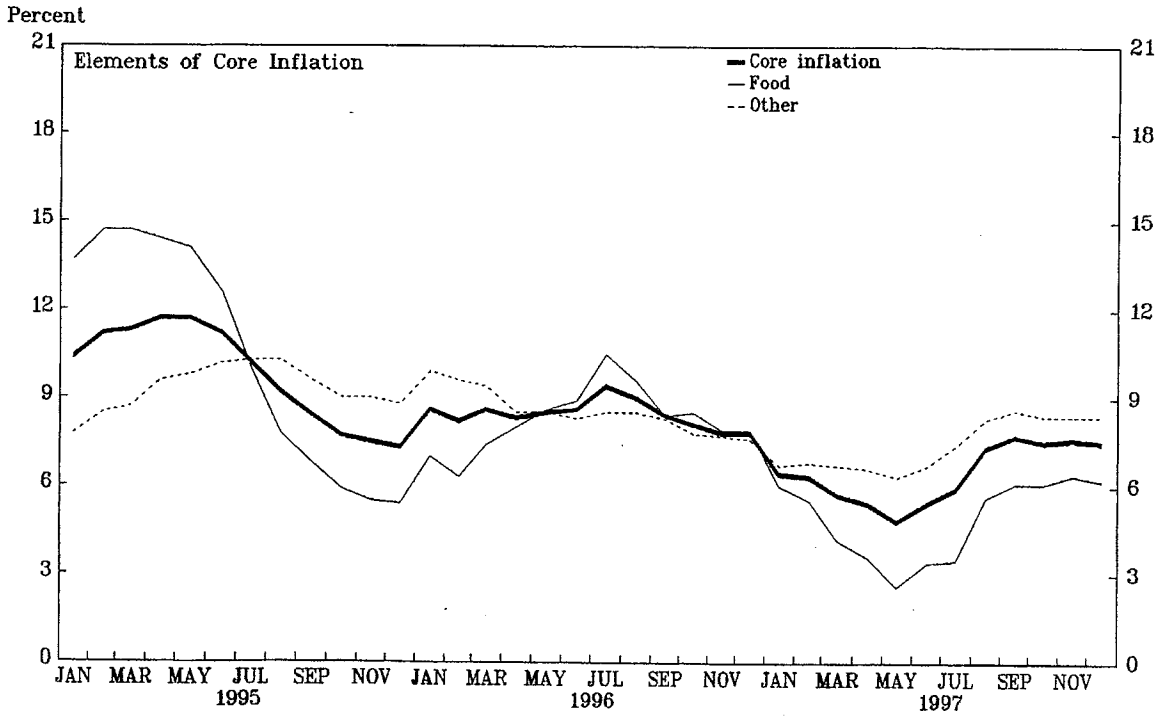
costs, import prices, and money to inflation, whereas there is no support for the hypothesis of money endogeneity nor—somewhat less intuitively—that inflation causes wage growth. However, part of the reason for the latter finding may be that wages respond to total rather than core inflation. Also, the results suggest that causality runs from wages to money rather than the other way around in line with the findings above. Finally, exchange rate adjustment is Granger-caused by inflation, as one would expect. However, as with the results reported above, the solidity of these findings is not well established.

E. Conclusions

34. The discussion and analysis above have highlighted the importance of wages, exchange rate changes, and money growth for core inflation, as well as the continued impact of regulated price adjustments on consumer price inflation. While the empirical study suffers from a number of shortcomings, they have generally supported the findings in other studies and a number of hypotheses inspired by anecdotal evidence. Thus, a fundamental role in driving inflation is played by wages, including through considerable real wage rigidity and monetary accommodation of wage increases. Changes in the rate of depreciation have an immediate and significant impact on the rate of inflation, although the pass-through effect appears to be rather limited in the presence of tight financial policies. These findings point to the need for a tighter grip on wage policy, speeding up of enterprise restructuring and privatization, and continued financial policy restraint if progress is to be made in tackling the resilient nature of inflation in the Czech Republic.

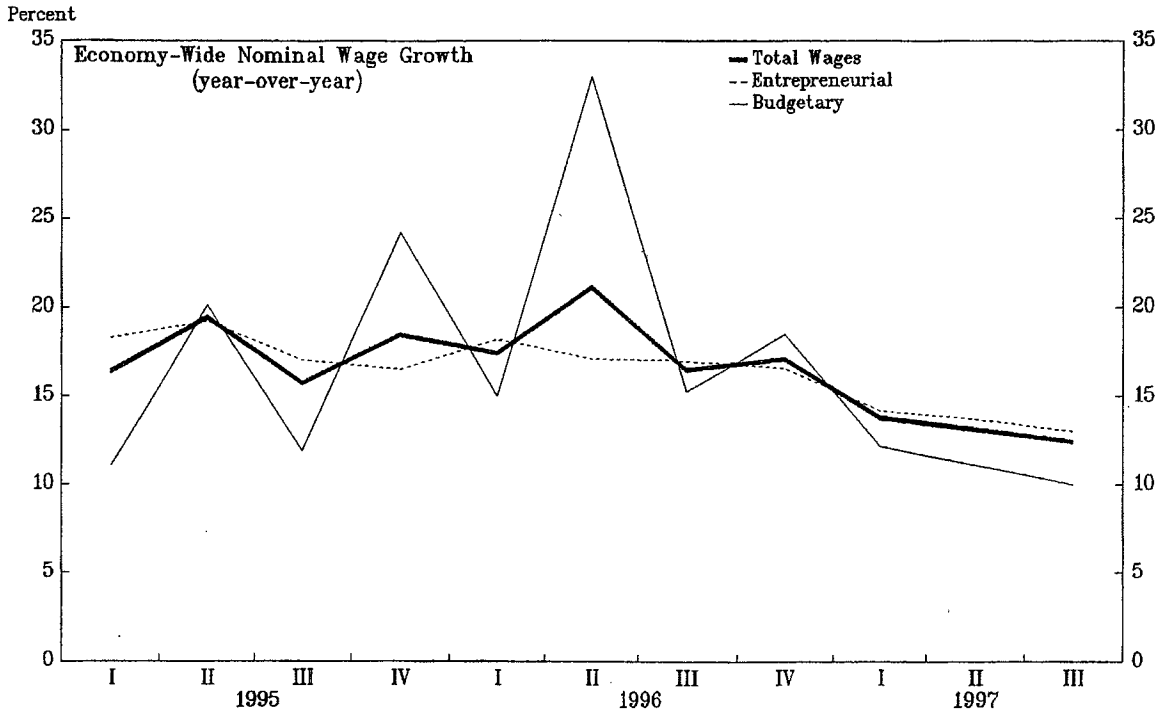
Figure 2
CZECH REPUBLIC
INFLATION DEVELOPMENTS
(1995-97)

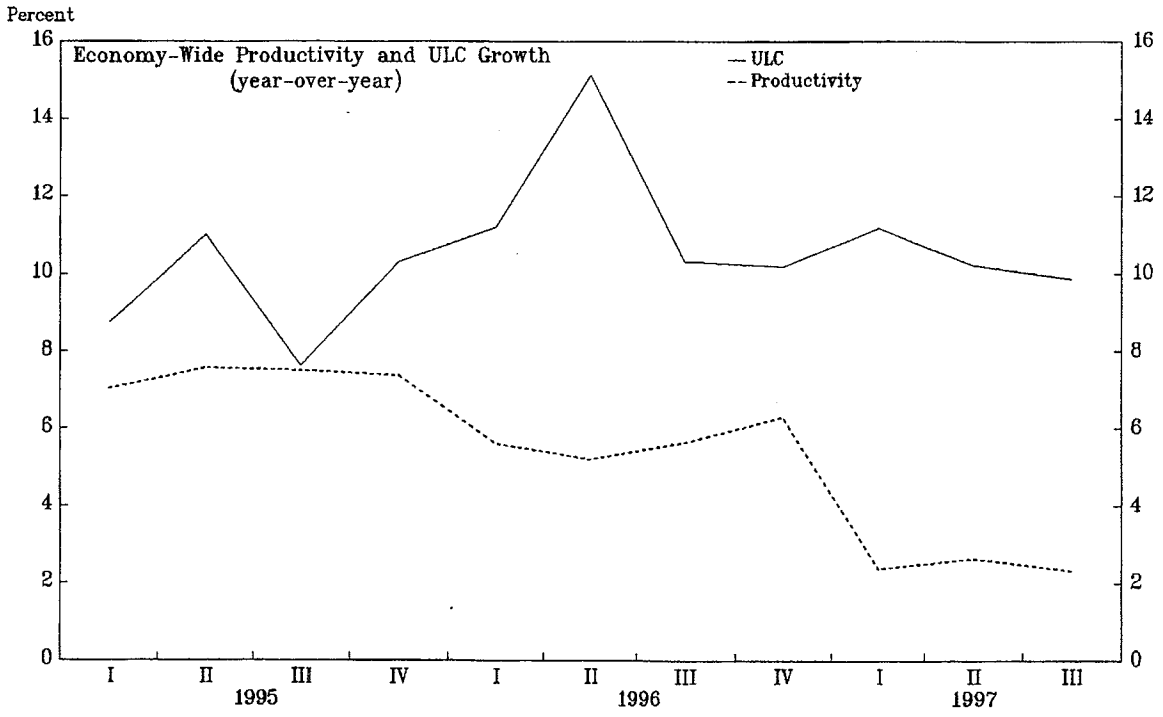




Sources: Czech authorities.

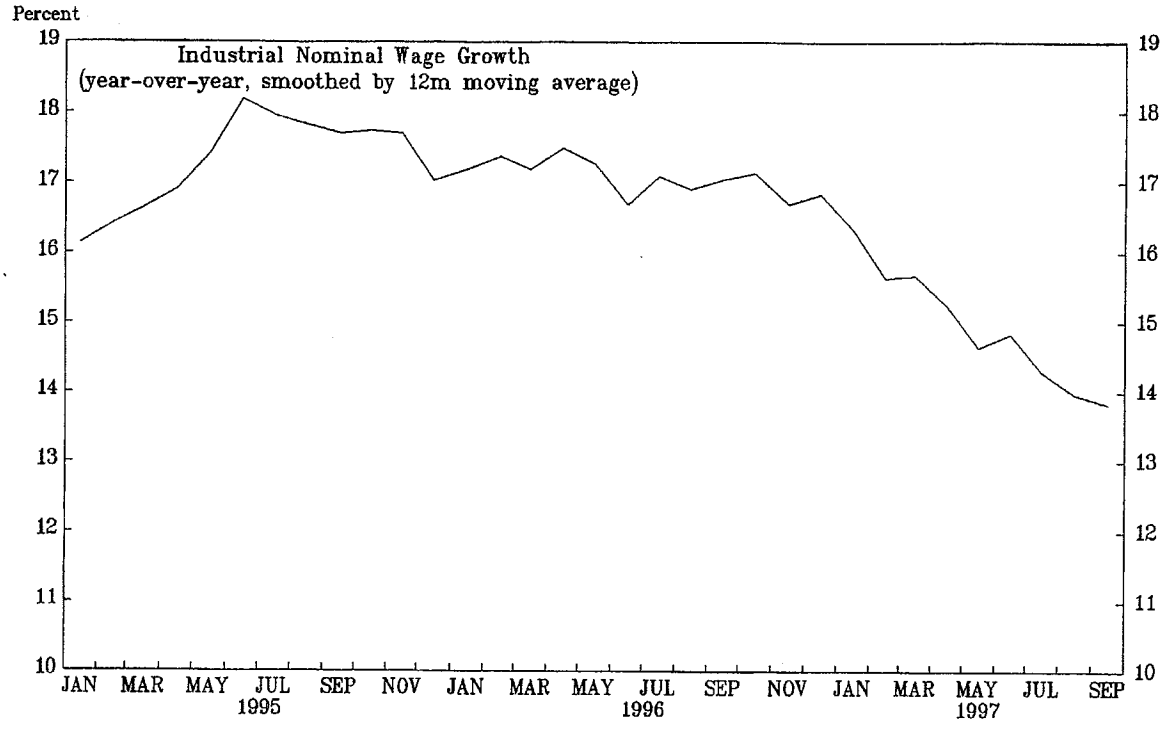
Figure 3
CZECH REPUBLIC
ECONOMY-WIDE WAGE, PRODUCTIVITY, AND ULC GROWTH (1995-1997)

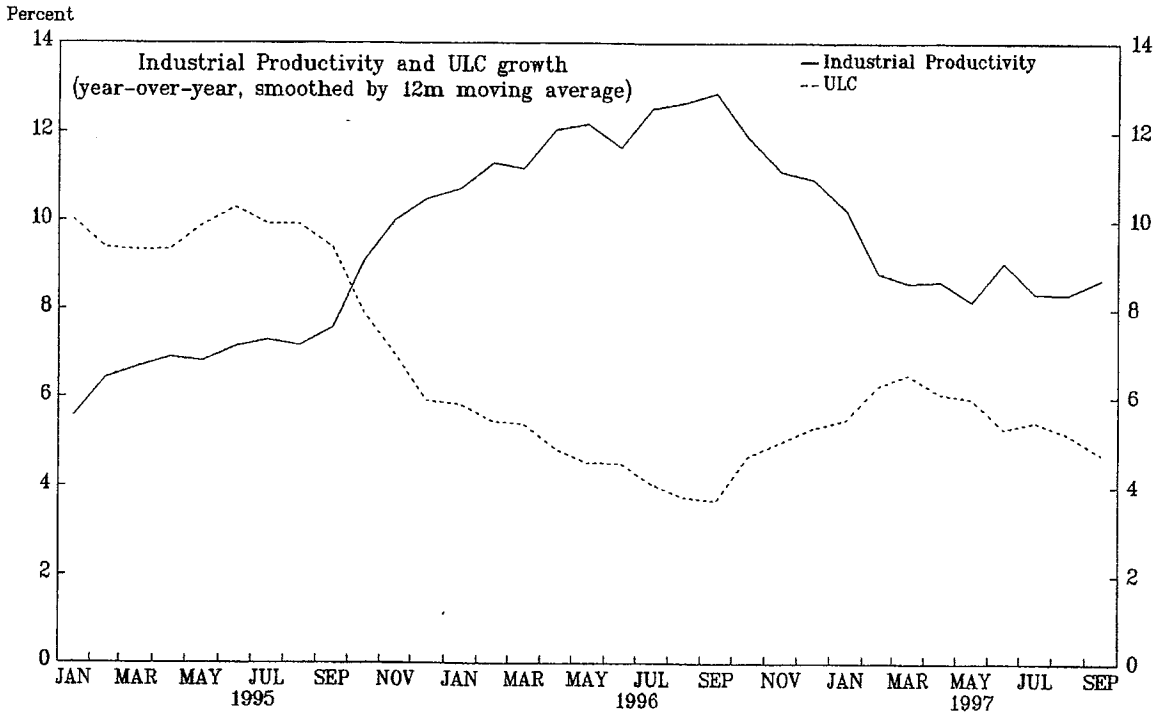




Sources: Czech authorities and staff estimates.

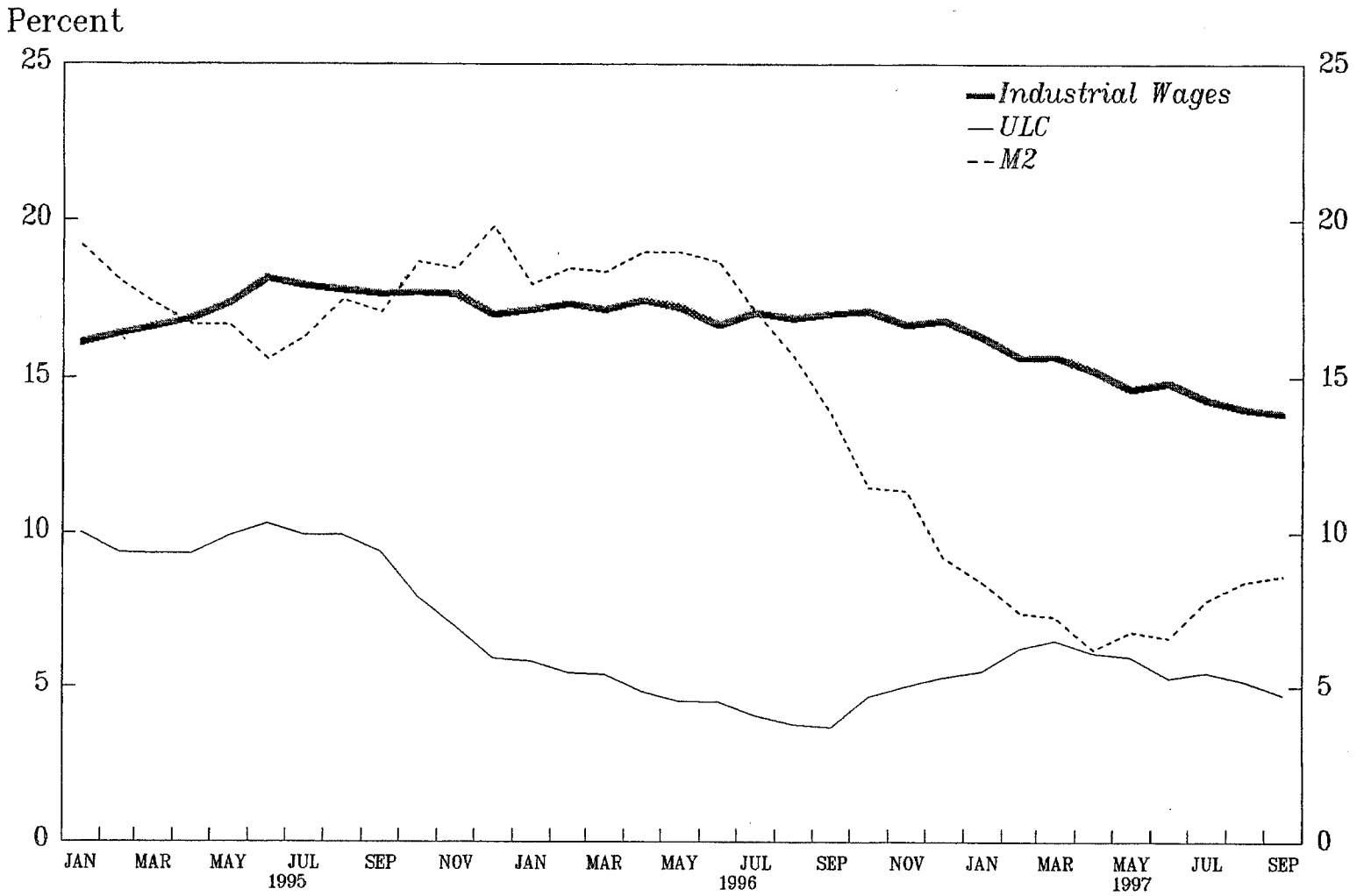
Figure 4
CZECH REPUBLIC
INDUSTRIAL WAGE, PRODUCTIVITY, AND ULC GROWTH
(1995-1997)





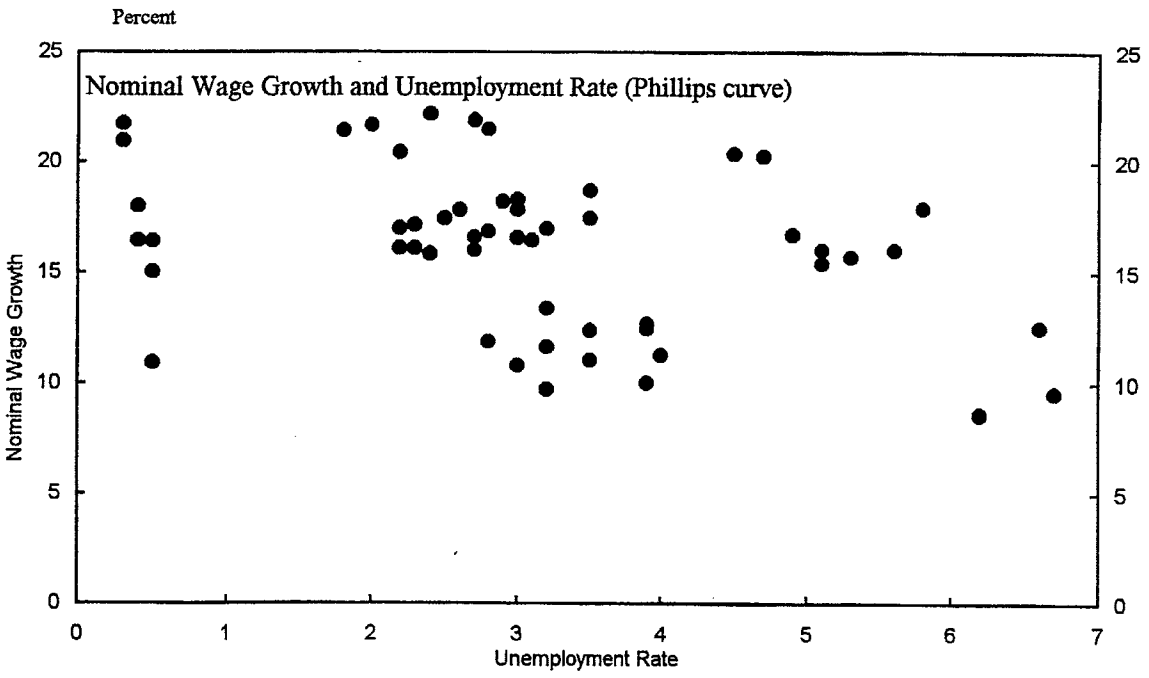
Sources: Czech authorities and staff estimates.

Figure 5
CZECH REPUBLIC
INDUSTRIAL WAGE, ULC, AND MONEY GROWTH
(1995-1997)



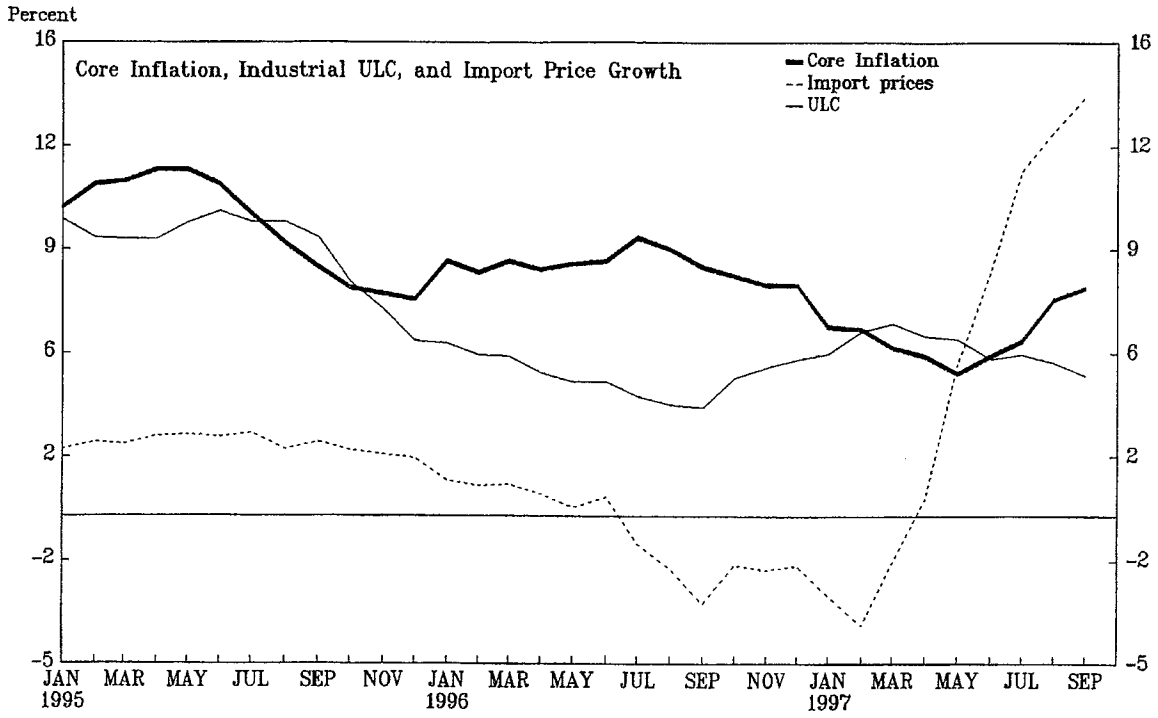
Sources: Czech authorities.

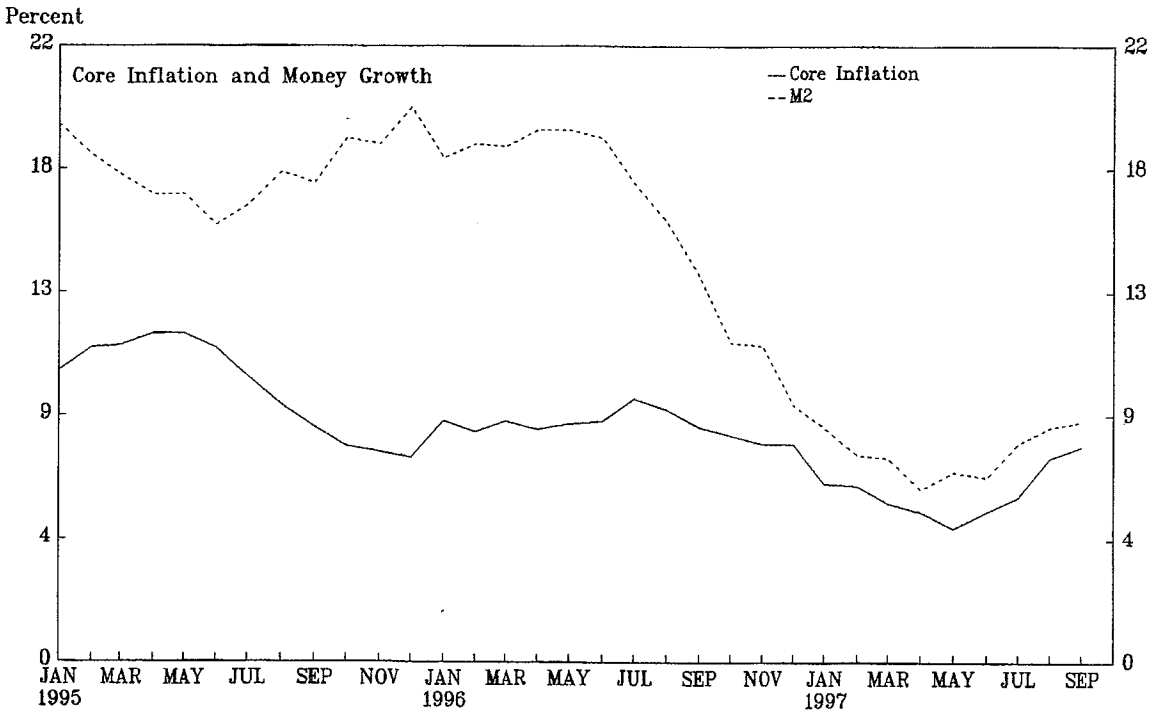
Figure 6
CZECH REPUBLIC
ECONOMY-WIDE WAGE GROWTH AND UNEMPLOYMENT
(1995 - 1997)



Source: Czech authorities.

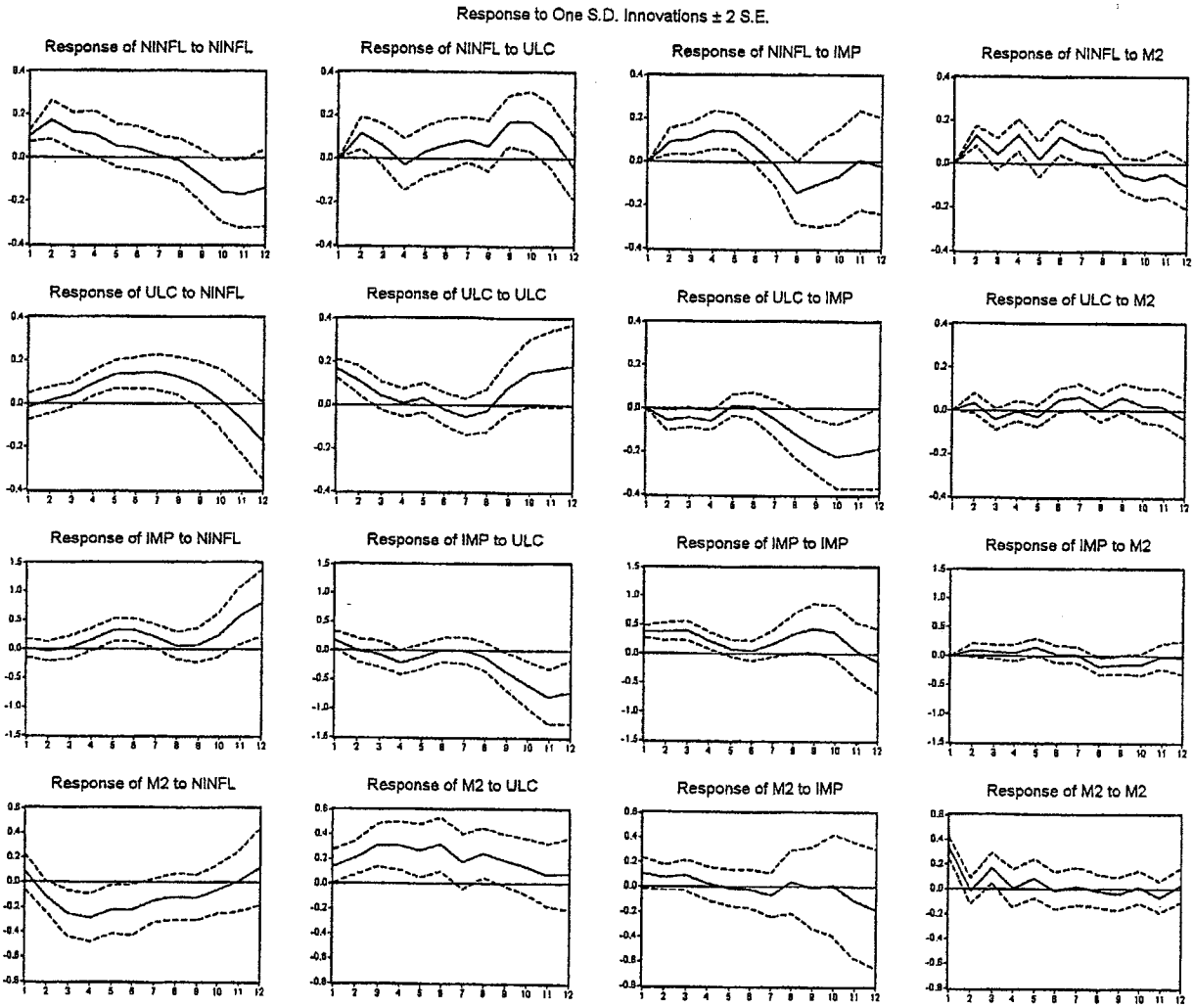
Figure 7
CZECH REPUBLIC
CORE INFLATION, ULC, IMPORT PRICES, AND MONEY GROWTH (1995–1997)





Sources: Czech authorities and staff estimates.

Figure 8
CZECH REPUBLIC
IMPULSE RESPONSES IN UNRESTRICTED VAR MODEL



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III. Public Finance: Recent Developments and Outlook[17]

A. Fiscal Developments

Overview

35. Since the beginning of the transition, the primary fiscal policy goal of the central government has been to maintain a balanced budget. Within this framework, however, a number of specific budgetary operations have been carried out by the state's extrabudgetary funds or financed from the National Property Fund (NPF) and State Financial Assets (SFA, the central government's account at the Czech National Bank, in which the state budget surpluses from previous years are deposited).[18] If the budgetary and extrabudgetary operations of the central government are consolidated with the finances of the local authorities and the public health insurance funds,[19] the accounts of the general government so defined were in deficits of 1–2 percent of GDP during 1994–96, after having posted a small surplus in 1993 (Table 4 and Figure 9, and Tables A15-A23, SM/98/30, Sup. 1 (1/30/98)).

36. Another priority of fiscal policy has been to reduce the role of the state in the economy. Thus, revenue as a ratio to GDP has fallen progressively over the years, mainly owing to discretionary cuts in the rates for direct taxes and changes in tax regulations. Accordingly, consistent with the balanced budget objective, expenditures have been restrained across the board; the impact, however, has been felt more by spending on goods and services and by investment, and the share of transfers to households in total expenditure has increased.

37. The public finances experienced considerable strain in 1997. The fiscal outturn in the first quarter was weaker than expected, taking into account the normal seasonal pattern and the annual budget target, on account of severe revenue shortfalls. In response, the authorities initiated two rounds of expenditure cuts around midyear with the objective of achieving a

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[17]Prepared by Biswajit Banerjee.

[18]Typically, the transfers from the SFA account are recorded as revenues of the state budget, while transfers from the NPF and the associated expenditures are excluded. This practice has been followed in Table 4 for the operations of the central government. However, in the presentation of the consolidated general government accounts, quasi-fiscal spending from the NPF is included as expenditures, and the transfers from the SFA and NPF are treated as financing.

[19]The mandatory public health insurance system is mainly financed by payroll-based contributions (4.5 percent for employees and 9 percent for employers), which cover about two-thirds of public expenditure on health care. These contributions are channeled through the state health fund to the 11 public health insurance companies.

balanced state budget. However, the July floods dealt a severe blow to this prospect. As a result, the consolidated budget deficit of the general government in 1997 widened to slightly more than 2 percent of GDP.

38. The tighter fiscal stance of the second half of 1997 is expected to be sustained in 1998. Thus, although the negative impact of the floods is likely to carry over into 1998, it is envisaged that the general government deficit will fall to 1 percent of GDP. With revenue growth forecast to be sluggish, this is to be achieved through major policy initiatives on the expenditure side.

Table 4. Czech Republic: Summary of Fiscal Operations, 1993-98

(In percent of GDP)

	1993	1994	1995	1996	1997		1998
					Budget	Prel. Est.	Budget
General government							
Total revenue	46.0	44.9	43.8	42.7	44.5	40.7	38.8
Total expenditure	45.5	46.0	45.7	43.9	44.7	42.8	39.8
Balance	0.5	-1.2	-1.8	-1.2	-0.2	-2.1	-1.0
State Budget							
Total revenue	34.9	33.3	32.4	31.2	32.7	30.4	28.8
Total expenditure	34.5	32.4	31.9	31.3	32.7	31.3	28.8
Balance	0.4	0.9	0.5	-0.1	0.0	-1.0	0.0
Local authorities' budget							
Total revenue	8.4	9.7	9.8	8.9	8.3	8.4	7.2
Total expenditure	8.0	9.8	9.9	9.5	8.2	8.8	7.7
Balance	0.5	-0.1	-0.1	-0.6	0.1	-0.4	-0.5
Balance of extra-budgetary funds	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Net spending from State Financial Assets account (-)	-0.2	-0.2	-0.9	-0.2	0.0	-0.3	-0.3
Use of privatization revenue (-)	-0.5	-1.6	-1.1	-0.2	-0.2	-0.4	-0.1
Balance of the health fund	0.3	-0.2	-0.3	-0.1	-0.1	-0.1	-0.1

Sources: Ministry of Finance; and staff estimates.

1997 Budget

39. The 1997 budget aimed at the **general government accounts** being close to balance, implying a fiscal contraction equal to 1 percent of GDP. The state budget and the accounts of the extrabudgetary funds were designed to be balanced, the local authorities' budget was expected to show a small surplus, and hardly any use of the SFA account was envisaged. However, the health insurance funds were expected to be in a small deficit and a token use of NPF resources was also foreseen.

40. The **state budget** was formulated on the assumption that real economic growth would be maintained around 5 percent and that revenues from the direct taxes would increase broadly in line with nominal GDP growth. Unlike the 1996 budget, the 1997 budget included no proposed changes in the rates for profits tax and the personal income tax, though the permitted deductions for personal income tax were adjusted for inflation. On the expenditure side, transfers to enterprises and subsidized organizations and capital expenditures were budgeted to remain broadly unchanged in nominal terms. However, within the framework of overall restraint in expenditures, relatively large increases were budgeted in a number of areas such as pension payments, transfers to the health insurance funds representing payment for "unproductive" persons, and housing policy.

Developments in 1997

41. The **general government deficit in 1997** is estimated at CZK 35 billion (2.1 percent of GDP), compared with the original target of near balance and a revised deficit target of CZK 12 billion (0.7 percent of GDP) established in midyear. The deficits of the state budget and the local authorities are estimated at about CZK 16 billion (1 percent of GDP) and CZK 6 billion (0.4 percent of GDP), respectively, and expenditures financed by transfers from the SFA account amount to about CZK 10 billion. The overshooting of the general government budget deficit from the midyear target is explained mainly by the adverse impact of the floods, amounting to CZK 21 billion (1.2 percent of GDP). In the absence of the negative impact of the floods the general government deficit would have been the equivalent of 0.9 percent of GDP.

42. The authorities realized early in the year that the budget **tax revenue** projections would not be achieved once it became apparent that (i) the macroeconomic performance in the second half of 1996 (the base for the 1997 projections) was worse than anticipated at the time of budget formulation and that, against this background, the macroeconomic assumptions underlying the budget projections were overly optimistic; (ii) the utilization of tax deductions was running ahead of expectations; and (iii) that tax administration was weak. Thus, based on the outturn in the final months of 1996 and the first five months of 1997, the state budget tax revenue projections for the year as a whole were lowered by CZK 42 billion. The tax revenue projections were revised downward by a further CZK 12 billion following

the July floods. In the event, the actual shortfall in tax revenue in 1997 was CZK 46 billion (2¾ percent of GDP)—somewhat smaller than expected by the authorities.

43. In view of the substantially weaker revenue prospects, a package of **expenditure cuts** was announced in two rounds (in April and May 1997), amounting to CZK 42 billion (about 8 percent of the originally budgeted expenditure, equivalent to 2.5 percent of GDP). The cuts were across the board: wages and salaries (the so-called fourteenth wage was not paid to civil servants in December), expenditure on goods and services, subsidies to enterprises and subsidized organizations, transfers to households (the bulk of this saving was achieved by delaying the payment of the automatic indexation of pensions by two months), and, especially, investment. Investment cuts alone accounted for about 40 percent of the total expenditure cuts. However, some mandatory expenditures (such as interest payments, payments for property loss of banks, and calling in of state guarantees on loans) were increased by a total of about CZK 5 billion. As a result of the July floods, there was additional expenditure of about CZK 9 billion, financed almost entirely from extrabudgetary resources.[20]

44. Preliminary data on the **local authorities' budget** outturn are not yet available; because of the large number of municipalities involved there is a long delay in reporting. The deficit estimated for the local authorities (CZK 6 billion) is based on the outturn in the first three quarters of the year and is predicated on the assumption that the central government was successful in its efforts to persuade local authorities to limit expenditures in the fourth quarter. Specifically, it is assumed that (i) like the central government, the local authorities did not pay the so-called fourteenth wage to their employees in December; and (ii) capital expenditures were restrained.

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[20]The total fiscal cost of the floods is estimated at CZK 34 billion. Of this, CZK 21 billion (1¼ percent of GDP) was borne in 1997, and CZK 13 billion (0.7 percent of projected GDP) will carry over into 1998. The bulk of the fiscal cost will be felt through lower revenues. The negative impact on revenues is estimated at CZK 12 billion in 1997 and CZK 9 billion in 1998. On the expenditure side, as of end-October, the government had decided to release CZK 13 billion in relief and reconstruction expenditure (cost of cleaning up, payment of social security benefits to affected families, repairing damage to transportation infrastructure, renovation of electricity networks, etc.), of which CZK 9 billion was spent in 1997. The flood-related expenditure will be financed almost entirely out of extrabudgetary resources as follows: CZK 5 billion transferred by the NPF from the proceeds of small-scale privatization, CZK 5 billion raised through the issuance of flood bonds, CZK 0.9 billion released by the SFA account, CZK 1.5 billion from the Czech Land Fund, CZK 0.3 billion of relief collections by the Fund of Environmental Protection, and CZK 0.2 billion direct expenditure of the state budget.

Proposed 1998 Budget

45. The tight fiscal stance adopted in the second half of 1997 is intended to be sustained in 1998. On this basis, the authorities project a **general government deficit** of about CZK 18 billion (1 percent of projected GDP) in 1998, implying a fiscal contraction equal to about 1 percent of GDP. A balanced state budget has been proposed; for the local authorities' budget, a deficit of CZK 9 billion is foreseen by central government officials; a drawdown of the SFA account by about CZK 6 billion is envisaged; and the health funds would continue to show a small deficit. Ministry of Finance officials estimate that the July floods would have a negative impact on the 1998 budget by about CZK 13 billion (0.6 percent of GDP). Thus, excluding the negative impact of the floods, the general government deficit would be in a deficit of 0.4 percent of GDP.

46. The proposed **state budget** for 1998 is premised on the following assumptions: GDP growth of 2.2 percent; inflation of 9 percent; increase in the total wage bill in the entire economy of 7.6 percent and average wage growth of 8 percent; and the average unemployment rate increasing from 4.2 percent in 1997 to 5.4 percent in 1998. Revenues are projected to increase by 7 percent (about CZK 34 billion), of which nearly 60 percent is expected to come from social security contributions. Expenditures are projected to increase by only 3.8 percent (CZK 19.5 billion).

47. The budget includes several **discretionary revenue measures** with an estimated positive net impact on a fiscal year basis of CZK 7.1 billion for the state budget and a negative net impact of CZK 2.6 billion for the local authorities' budget (reflecting revenue-sharing arrangements). It also assumes significant improvements in tax collection efficiency for the VAT and social security contributions. Nevertheless, tax revenue as a ratio to GDP is projected to decline further. This mainly reflects the seeming inelasticity of the tax system, and to a lesser degree the negative impact of the July 1997 floods.

48. The discretionary measures include a lowering of the corporate profits tax rate from 39 percent to 35 percent; indexation of the nontaxable minimum income threshold for physical persons, child allowances and other permitted deductions, and of tax brackets for personal income tax; increase of VAT on fuels (electricity, gas, and coal) from the lower rate of 5 percent to the standard rate of 22 percent; and increase of excise duties on cigarettes, alcohol, and motor fuels. The increase of the VAT rate on fuels is an important step toward harmonizing the regulations with the European Union, while the increase in excises would maintain their share in GDP. A breakdown of the estimated impact of discretionary measures is shown in Table 5 below.

Table 5. Czech Republic: Impact of Discretionary Revenue Measures in 1998

(In billions of koruny)

Increase of VAT rate on fuels	+6.0
Impact of measures with regard to profits tax and personal income tax on fiscal year basis	-9.5
Of which:	
State Budget	-6.9
Local Authorities' Budget	-2.6
Increase of excise duties	+8.0
Of which on:	
Cigarettes	+3.2
Gasoline	+2.3
Alcohol	+1.0
Other (wine, beer, diesel, etc.)	+1.5
Total	+4.5
Of which:	
State Budget	+7.1
Local Authorities' Budget	-2.6

49. On the **expenditure side**, the major policy initiatives are (i) a freeze of the nominal wage bill;[21] (ii) changes in the legislation on pensions and other social security benefits, which together are estimated to yield a saving of CZK 10 billion (see Section B below);[22] (iii) freezing in nominal terms the expenditures on goods and services of most ministries, with the exception of Ministry of Defense (where expenditures are set to increase by CZK 6.7 billion), scientific research and development (up by CZK 5.2 billion), and general reserves (up by CZK 1 billion); (iv) cutting back noninvestment subsidies by 13 percent;[23]

[21]Unless Departments can reduce staffing, this will imply a freeze of nominal wages of civil servants. Judiciary personnel have been exempted however.

[22]Of which, about CZK 6 billion will be in lower pensions, CZK 3 billion in lower family benefits, and CZK 1 billion in lower unemployment benefits.

[23]The major cutbacks are in heating subsidies (to only CZK 0.2 billion from CZK 4.5 billion in 1997, made possible by further increases in administered prices), and the subsidy for property detriment (to CZK 1.8 billion from CZK 4.5 billion). Cuts in these subsidies would

(continued...)

and (v) replacing investment subsidies to enterprises and subsidized organization amounting to CZK 7 billion by loan guarantees (i.e., shifting from expenditures to a contingent liability). The authorities also project that flood-related expenditure financed from the drawdown of the SFA account will amount to CZK 4 billion.

B. Selected Fiscal Issues

Fiscal Relationship Between the State and the Local Authorities

50. In the Czech Republic, there are about 6,000 self-governing municipalities with a substantial degree of fiscal autonomy. The municipalities receive formula-based shares of central direct tax revenue, as well as appropriations from the state budget for selected investment and noninvestment programs (education, health care, housing policy, repair for environmental damage, water supply, etc.) that may be partially or fully state financed.[24] Municipalities also derive revenues from property taxes, leasing out properties, and fees and fines, and are entitled to issue bonds (subject to approval of the Ministry of Finance) and borrow from banks.

51. The formula for revenue sharing between the central government and the local authorities was changed in 1996. Prior to that, revenues from the personal income tax on wages and entrepreneurial income were wholly assigned to the local authorities, while corporate profits tax revenues were wholly assigned to the central government. Since 1996, local authorities have received 64 percent of personal income tax revenues and 20 percent of corporate profits tax revenues. The change in the revenue-sharing formula dampened the revenue prospects for local authorities, because until then, with strong and continued wage growth but less buoyant profits, revenue shares had been shifting in favor of the local authorities.

52. In 1998, with direct tax revenues projected to decline and appropriations from the state budget also affected by the restrictive measures adopted by the central government, it is expected that the revenue of the local authorities will stagnate. It is the expectation of the Ministry of Finance that the local authorities would adjust their spending in accordance with the poor revenue outlook, and that the deficit would not exceed CZK 9 billion (½ percent of projected GDP). In particular, it is expected that the local authorities would follow the state

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[23](...continued)
be partly offset by higher subsidies to agriculture (to CZK 10.7 billion from CZK 7.9 billion in 1997).

[24]Hence, local authorities usually prepare their budget around the beginning of the calendar year, after the state budget has been approved by Parliament. The version of the local authorities' budget that is included with the state budget reflects the outcome that is considered desirable by the Ministry of Finance.

budget example and freeze the nominal wage bill, and also not increase investment expenditure.

53. So that the fiscal adjustment at the central government is not offset by expansionary policies on the part of the local authorities, the Ministry of Finance has taken steps to limit discretionary expenditures of local authorities and to restrict their ability to borrow. Discretionary investment subsidies (i.e., excluding subsidies for central government projects for which local authorities are the implementing agency) will be punitively scaled back in 1998 if local authorities do not moderate wage growth and do not achieve a balanced budget. A new law is to be introduced in 1998 to regulate the debt of local authorities. The main features of the proposed law are as follows: (i) debt-service payments should not exceed 20 percent of current revenue; (ii) borrowing to finance current expenditures would be prohibited; (iii) debt contracted in any particular year could not exceed 50 percent of the projected revenue for that year without explicit approval by municipal residents through a referendum; (iv) all decisions on selling property and extending loans to third parties would have to be approved by three fifths (instead of one half) of the council members; and (v) and municipalities would no longer be allowed to give guarantees for loans contracted by third parties.

Taxation

54. Tax revenue as a percentage of GDP has fallen progressively over the years, and the composition of taxes has shifted away from enterprise profits taxes and toward personal income and consumption taxes. This is mainly a direct result of the tax reform initiated in 1993 and the subsequent changes in the tax rules and the rates.

55. The statutory tax rate for **corporate profits** has been lowered by 2 percentage points every year, from 45 percent in 1993 to 39 percent in 1996. After a pause in 1997, the rate is scheduled to fall by 4 percentage points to 35 percent in 1998. The tax reform of 1993 provided new tax breaks for the enterprise sector by introducing a more accelerated schedule for asset depreciation, allowing a tax credit for investment in selected equipment, and permitting carry forward of losses incurred in a fiscal year for a period of seven years. From 1995, enterprises are also allowed to make deductions for bad debts under specified conditions. Reflecting the discretionary cuts in the tax rate, maximum exploitation by enterprises of the tax breaks, and declining enterprise profitability owing to rapid real wage growth, the corporate profits tax relative to GDP has fallen by more than one half since 1993.

Table 6. Czech Republic: Structure of Tax Revenue, 1993-98

	1993	1994	1995	1996	1997 Est.	1998 Budget
			(In percent of GDP)			
Tax revenue	41.3	40.5	40.0	39.0	37.8	36.0
Direct taxes	10.1	10.4	10.1	9.4	8.6	7.3
Corporate profits	7.1	5.6	5.0	4.1	3.3	2.4
Personal income tax	3.0	4.8	5.1	5.3	5.3	4.8
Indirect taxes	12.2	13.1	12.6	12.5	11.9	11.8
VAT	7.0	7.5	7.1	7.2	7.1	7.0
Excises	3.7	4.1	4.2	4.0	3.9	4.0
International trade	1.5	1.5	1.3	1.3	0.9	0.8
Social security contributions	10.9	11.4	11.5	11.4	11.6	11.4
Health fund contributions	4.2	4.3	4.4	4.5	4.5	4.3
Other	3.9	1.3	1.3	1.2	11.9	1.1
			(Share in total tax revenue, in percent)			
Tax revenue	100.0	100.0	100.0	100.0	100.0	100.0
Direct taxes	24.4	25.7	25.3	24.1	22.8	20.2
Corporate profits	17.1	13.9	12.6	10.6	8.8	6.8
Personal income tax	7.2	11.8	12.8	13.5	14.0	13.5
Indirect taxes	29.7	32.3	31.5	32.0	31.5	33.0
VAT	17.0	18.6	17.7	18.4	18.8	19.4
Excises	9.0	10.0	10.6	10.3	10.3	11.2
International trade	3.7	3.8	3.2	3.3	2.4	2.3
Social security contributions	26.5	28.1	28.8	29.3	30.6	31.8
Health fund contributions	10.1	10.6	11.0	11.5	11.9	11.9
Other	9.5	3.2	3.4	3.1	31.6	3.1

Source: Data provided by the Ministry of Finance.

56. Profits tax collections have persistently fallen short of budgeted levels in recent years, and the deviation was particularly large in 1997. This is perhaps because predicting the behavior of corporate profits tax revenues has been complicated by the changes in the tax rules and the rates. In particular, there is considerable uncertainty regarding the extent to which tax deductions would be exercised by enterprises, and also the timing. It is likely that taxpayers have started taking greater advantage of their tax obligation options as they have become better acquainted with the regulations. The initial projection of corporate income tax for 1997 was based on the premise that GDP growth would be a reasonable proxy for the dynamics of profits, and the expectation that enterprises would not make use of deductions for loan write-offs to a greater extent than in the previous year. As it turned out, profits

declined significantly in 1996 and this trend continued in 1997;[25] in part this reflected lower operating profits, but higher non-operating costs due to greater application of deductions were an equally important factor.

57. Revenue from **wage and personal income taxes** remained broadly stable at around 5¼ percent of GDP during 1994–97. Rapid wage growth kept revenues buoyant and dominated the impact of some reductions in the tax rates. Since 1993, the top marginal rate for personal income tax has been reduced progressively from 47 percent to 40 percent in 1996. However, the number of individuals affected by the top rate has been small, owing to relatively generous exemptions and deductions. Personal income taxes are projected to decline relative to GDP in 1998, as the wage bill growth targeted by the government is below the projected growth of nominal GDP.

58. The performance of the **value-added tax** (VAT) suggests continued deficiencies in tax administration, especially the inability to capture a significant proportion of the increase in private activity. Contrary to the expectation that VAT revenue relative to GDP would increase as the initial implementation problems of the new tax were resolved over time, it fell in 1995 to about 7 percent of GDP—below the performance level of the initial years—and has remained about this level since then. It is likely that the importance of non-registered traders (those with an annual turnover of less than CZK 3 million) and the self-employed has increased, as recent evidence shows that declared final consumption (i.e., as obtained from the tax returns of the VAT payer) has grown at a slower pace than actual final consumption indicated by national accounts data.

59. Tax administration in the Czech Republic is experiencing a problem of eroding taxpayer discipline. Recorded **tax arrears** have mounted in recent years, partly reflecting an increase in the number of audits of taxpayers carried out by tax inspectors. At end-July 1997, the total stock of arrears amounted to CZK 63.8 billion (3.9 percent of GDP), of which CZK 13 billion represents arrears accumulated under the old tax system prior to 1993 and is deemed uncollectible, and CZK 44 million represents arrears of principal tax categories incurred since the tax reform of 1993. Nearly one half of the tax arrears incurred since 1993 concerns the VAT. Developments in arrears for the principal tax categories in recent years are shown in Table 7.

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[25]Profits tax collection in any year is a function of profitability in both the current year and previous year. Enterprises make their final settlement around midyear when the audited accounts of the previous year are ready. They are also liable to make tax payments in the course of the year on the basis of expected profits, but they have the leeway to negotiate lower payments if there are clear signs that developments in the financial position are worse than earlier envisaged.

Table 7. Czech Republic: Cumulative Arrears of Principal Tax Categories Since 1993

(End of period; in billions of koruny)

	1993	1994	1995	1996	1997 July
Principal tax categories	8.4	13.7	23.3	35.8	44.2
Of which:					
Corporate profits tax	2.5	2.9	3.8	6.2	7.5
Wage and personal income tax	1.5	2.2	2.8	5.0	6.8
VAT	3.9	7.5	12.8	19.0	22.7
Excise taxes	0.5	1.0	3.8	5.6	7.2

60. In addition, the stock of arrears in social security contributions is estimated by the Ministry of Finance to have reached about CZK 32 billion (2 percent of GDP) at end-1997. Arrears in social security contributions have been increasing at a faster rate than in the wage tax, although the tax base is the same for both and employers are responsible for passing on both taxes to the government. Total outstanding arrears at end-July 1997 as a percent of total collections since 1993 is estimated at 4 percent for social security contributions and 1 percent for the wage tax. From 1998, the government intends to carry out a stricter review of installment payment requests and a more prompt collection of amounts owed, in order to address the problem of growing arrears in social security contributions and other taxes.

Expenditure

61. A striking feature of the structure of expenditure of the state budget has been the growing share of mandatory expenditures, particularly **social insurance transfers to households**. The share of such transfers (these include pensions, sickness benefits, family benefits, unemployment benefits, and general income support) in total expenditure has increased from 34 percent in 1993 to an estimated 41.5 percent in 1997 (Table 8). The share is projected to rise further in 1998, despite the changes in legislation aimed at limiting the growth of social insurance transfers. Given the generally sluggish revenue growth outlook for the coming years and the continued increase in social insurance transfers projected under the current system of benefits, the maintenance of a balanced budget policy will put a further squeeze on discretionary expenditures.

Table 8. Czech Republic: Social Insurance Transfers of the State Budget, 1993–98

	1993	1994	1995	1996	1997 Est.	1998 Budget
In percent of total expenditure	34.0	37.0	37.2	38.2	41.5	42.6
In percent of GDP	11.8	12.0	11.8	12.0	13.0	12.3

Pensions

62. Pensions account for about 70 percent of social insurance transfers to households, and amount to about 9 percent of GDP.[26] The **funding of pensions** is managed on a pay-as-you-go basis; i.e., expenditures for benefits to current pensioners are covered from premiums collected from economically active persons. During 1993–95, income from pension premiums exceeded the expenditure on pensions, mainly as a result of wages increasing at a faster rate than that assumed in determining the premium tariff. Hence, beginning in January 1996, the premium tariff for pension insurance was reduced from 27.2 percent of taxable wages to 26 percent.[27]

63. Since 1993, a major effort has been underway to **reform the pension system**. The main aims of the reform are: to improve the long-term viability of the system in the face of an aging population structure through a gradual increase of the retirement age;[28] to rationalize

[26]The ratio of pension payments to GDP in the Czech Republic is higher than in Canada (5.5 percent), the United States (7.1 percent), about the same as in the United Kingdom (9.2 percent) and Hungary (9.9 percent), and lower than in Poland (12.4 percent), France (12.7 percent), Germany (13 percent), and Austria (14.5 percent). Pensions are currently not subject to any tax in the Czech Republic.

[27]Employers pay 19.5 percent (20.4 percent previously), and employees pay 6.5 percent (6.8 percent previously). Self-employed persons are required to pay 26 percent. Besides pension insurance, both employers and employees are required to pay sick-leave insurance and unemployment insurance as part of social security contributions. Social security contributions in the aggregate amount to 34 percent of the payroll, with employees contributing 8 percent and employers 26 percent.

[28]Since 1996, a gradual increase in the retirement age has been introduced: two months for men and four months for women per year of the law, effective to 2007, when the retirement age will be 62 years for men and 57–61 years for women (according to the number of

(continued...)

the treatment of individuals in different professions; and to remove the distortions that existed under the old regime by linking benefits more directly to contributions. At the same time, however, an important objective is to forge a more automatic link between pensions and the development of wages and prices. Prior to 1996, pensions were adjusted on a discretionary basis. In 1996, the principles of pension increases were legislated: pensions would be fully adjusted for inflation whenever the rise in the CPI exceeded 5 percent from the previous adjustment, and they would be also adjusted upward by one-third of the average increase in real wages during the previous two years. Faced with the prospect of sluggish growth of revenues of the state budget in 1998, new legislation has been proposed that seeks (initially on a temporary basis for 1998 only) to raise the inflation threshold before indexation is triggered to 10 percent, lower the indexation coefficient to 70 percent, and make the linkage of pensions to real wage increases more flexible.

64. The Czech authorities have prepared **long-term scenarios** of the financial position of the pension system for 1997-2020, on the basis of specific assumptions on wages, inflation, and unemployment, and taking into account demographic developments.[29] If the current replacement rate is maintained and the retirement age increases in accordance with the pension law, the premium tariff would need to increase from the current 26 percent to 36 percent in 2020. If the premium tariff remains unchanged at the current level, it is projected that expenditure for pensions would exceed income from 2005. The long-term funding of the pension system would be assured if one of the following were implemented: (i) an increase of the premium tariff to 29 percent from 1997; and (iii) annual capital contributions of CZK 40 billion, starting in 1997.[30]

Other social security benefits

65. In view of the resource constraint, some benefits will be reduced and eligibility criteria tightened from 1998. Because of the significant increase of unemployment that is anticipated, it has been proposed to lower **unemployment benefits** to 50 percent of the last salary for the first three months (60 percent currently), and to 40 percent for the subsequent

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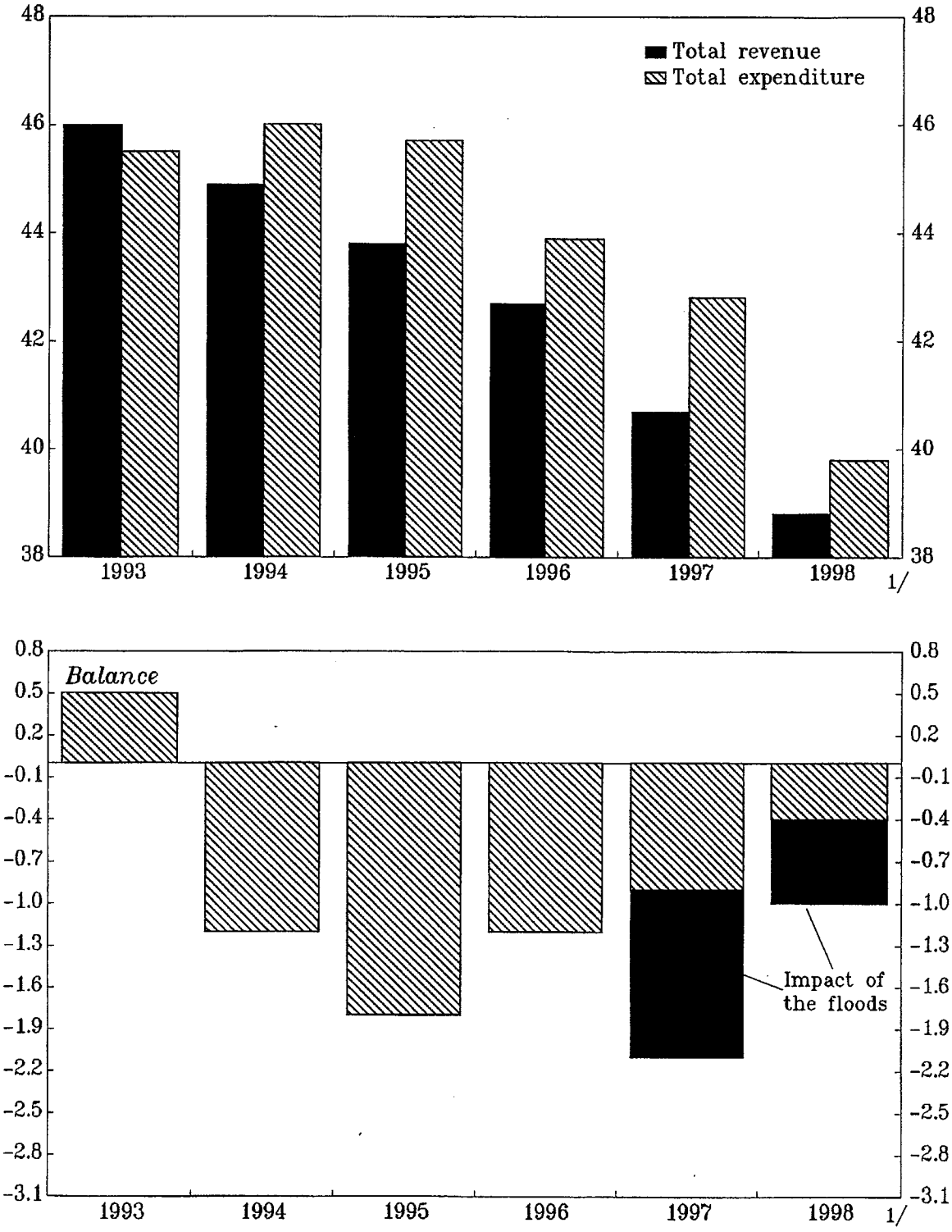
[28](...continued)
children reared).

[29]The assumptions are as follows: (i) nominal wage growth of 11.5 percent in 2000 and declining by 0.5 percentage point per year to reach 4 percent in 2020; (ii) inflation at 6 percent in 2000 and falling to 4.4 percent in 2005, 3.4 percent in 2010, and 2 percent in 2020; and (iii) unemployment rate of 4.65 percent in 2000 and rising to 5.8 percent in 2005, 6.5 percent in 2010 and remaining at this level thereafter.

[30]It is assumed that the return on investment would be 10 percent in 2000, 9.3 percent in 2005, 8.3 percent in 2010, and 7 percent in 2020. In theory, the same outcome could also be achieved through a single injection of capital into the pension system of CZK 400 billion.

months (50 percent currently). From 1998, **child benefits** will be given only to families whose income is less than 2.2 times the minimum living standard (3 under the old law). It is expected that with this change, the proportion of Czech families receiving child benefits will fall from 95 percent to 75 percent. The amount of child benefit will be set at 0.27 times the minimum living standard (MLS) for those whose income is below 1.8 times the MLS, and at 0.14 for those whose income is 1.8–2.2 times the MLS. The **minimum living standard** was increased by about 5 percent from July 1997. Thus, for a one-person household the MLS went up from CZK 2,890 to CZK 3,030.

Figure 9
CZECH REPUBLIC
FISCAL OPERATIONS OF THE GENERAL GOVERNMENT
(in percent of GDP)



Sources: Czech Ministry of Finance, and Fund staff estimates.
1/ Projections.

IV. Monetary and Exchange Rate Policy Issues[31]

A. Overview

66. After several years of huge capital inflows in the context of a fixed exchange rate regime, monetary policy gained some autonomy in early 1996, when a widening current account deficit and the adoption of a wider exchange rate band reduced the attractiveness of the koruna to investors. This permitted a rise in short-term interest rates and a sharp deceleration of broad money growth, which led to an appreciating exchange rate and brought inflation to post-reform lows. But with little support from fiscal and wage policies, the current account deficit continued to widen through early 1997. The rise of the current account deficit to unsustainable levels, political uncertainty, and contagion effects from Southeast Asia weakened confidence in the koruna and eventually triggered a speculative attack that led to the adoption of managed floating in May 1997. Subsequently, policies were tightened further to support the exchange rate, albeit in a relatively unfavorable environment with continued political uncertainty and contagion effects from abroad. With the exchange rate no longer providing a clear nominal anchor, inflation targeting was introduced in 1998.

67. The environment within which monetary policy operates has thus changed drastically: Until early 1997, when investor confidence in the koruna was still strong, monetary policy was constrained by the effects of monetary tightening on external competitiveness through currency appreciation. Since the Spring of 1997, with confidence in the koruna somewhat shaken by the May crisis, contagion effects and political uncertainty, the efforts of monetary policy to maintain a stable exchange rate have been constrained by its effects on the financial position of banks and enterprises, given that ⅓ of bank loans are impaired and the indebtedness of enterprises to banks is ¾ of GDP. Although major banks have provisioned/collateralized their loans and exceed the minimum required capital adequacy ratio, their profitability weakened in 1997 (see Chapter V); moreover, several smaller banks came under pressure in 1996 while their restructuring restricted somewhat the room for maneuver for monetary policy.

68. This chapter examines the monetary policy framework, operating procedures and policy stance; exchange rate developments and, especially, the May 1997 currency crisis; developments in money, credit and interest rates; and reserve money developments and the conduct of monetary policy.

B. The Policy Framework, Operating Procedures and Policy Stance

69. The **exchange rate** and, to a lesser extent, **broad money** were used as **intermediate targets** from the beginning of the reform in 1991 until the May 1997 currency crisis; broad

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[31]Prepared by Anastassios Gagales.

money was a supplementary target in view of the long and variable lags of monetary policy, the fragility of the money-inflation relationship.[32] In the aftermath of the May crisis, the emphasis on the exchange rate target waned, and, as of 1998, monetary policy started focusing directly on the **inflation target.** Specifically:

- Until early 1996, the policy framework was strict **exchange rate targeting** with the exchange rate of the koruna kept within ±½ percent against a currency basket.[33] Owing to large (partially sterilized) capital inflows, this led to monetary growth well in excess of the announced targets (Figure 10), fueling domestic demand and inflation.

- The **wider fluctuation band** of ±7½ percent adopted in February 1996, together with a growing external imbalance, reduced the attractiveness of the koruna to investors, thereby increasing somewhat the autonomy of monetary policy. This enabled the Czech National Bank (CNB) to reduce liquidity growth and raise interest rates but only to the extent permitted by persisting appreciation pressures. In this period **monetary targeting** was pursued more vigorously but with consideration also given, among other things, to the exchange rate, economic activity and the financial condition of enterprises and banks. Because of this multi-faceted approach and uncertainty about velocity, the CNB kept under continuous review the appropriateness of the monetary target.[34]

- In the aftermath of the May 1997 turbulence and the formal replacement of exchange rate targeting by **managed floating**, the CNB pursued simultaneously several (unannounced) intermediate targets, including a *relatively stable* exchange rate vis-à-vis the DM subject to avoiding unsustainable interest rate increases; and *broad money* growth. In an effort to correct for the absence of a clear nominal anchor, the CNB increased its focus on inflation by announcing its *own* inflation objective.[35]

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[32]An account of the authorities' preference for exchange rate targeting can be found in SM/96/286, pp. 40-41.

[33]The currency basket comprised fixed amounts of deutsche mark and U.S. dollars with respective weights of 65 percent and 35 percent. The composition of the basket was last changed in May 1993.

[34]The money growth target of 8-12 percent was revised to 7-11 percent in August 1997.

[35]As a prelude to the more formal inflation targeting, the inflation objective was reported in mid-summer 1997 to be "single digit rate" whereas in September 1997 a target of 12 percent was mentioned in the press. Both figures related to overall or headline inflation.

- With the adoption of **inflation targeting** in 1998, disinflation became the *prime* objective; it is cast in a medium-term context (5½-6½ percent in 1998 and 3½-5½ percent by 2000) and defined in terms of **core ("net") inflation**, which excludes the effects of changes in administered prices and indirect taxes (Chapter II). To reach the inflation objective, the CNB will prepare inflation forecasts on a regular basis; deviations from the target would trigger corresponding adjustments in short-term interest—rates the operating target of the CNB. The CNB no longer targets the *exchange rate*, even though it considers that the current exchange rate is broadly consistent with the inflation and external objectives, and is prepared to intervene to avoid excessive fluctuations. While the inflation targeting framework has been used successfully in the disinflation process in certain industrialized countries, and the institutional and technical prerequisites would generally appear to be present in the Czech Republic, structural rigidities are more pervasive than in advanced economies and other objectives may be relatively more important. These relate in particular to the need to reduce the large external imbalance. The time path envisaged for inflation reduction—which is not as ambitious as that adopted in advanced economies—appears to reflect such considerations.

70. The **operating procedures** have changed little since early 1995, when short-term interest rate targeting was adopted as the operating procedure of monetary policy: the repo rates on CNB bills are set so as to influence domestic interest rates (they are closely related to interbank rates which, within a month, affect interest rates on new loans and, to a smaller extent, deposits) and through them to limit exchange rate fluctuations and regulate domestic economic conditions. This is implemented by setting a maximum interest rate on one- and two-week repos (or a minimum interest rate in the case of reverse repos, the main instrument of injecting short-term liquidity) on CNB bills and letting the volume of repos be determined in a competitive auction. In September 1997, the CNB introduced three-month repos in an effort to lengthen the average maturity of money market instruments; to increase the attractiveness of these instruments, their interest rate has been set 30-40 basis points higher than that of two-week repos. As a rule, daily auctions are held for two-week repos and weekly for three-month ones.

71. In addition to repos, use is made of outright sales of CNB bills and, on an infrequent basis, changes in non-remunerated required reserves and transfers of deposits from commercial banks to the CNB.[36] Contrary to the previous practice of massive interventions to prevent the koruna from appreciating, foreign exchange interventions have been used

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[36]This is equivalent to a 100 percent reserve requirement. Two notable cases are the transfer in 1995 of a SPT Telecom foreign exchange deposit (US$1.33 billion) related to the payment by a Dutch-Swiss consortium for a 27 percent stake in the company and the transfer in 1994-95 of NPF deposits. At the peak, these two deposits amounted to 7 percent of broad money.

sparingly since the beginning of 1996 in order to avoid encouraging short-term capital flows:[37] the CNB intervened on three occasions (February 1996, May 1997, and October-December 1997) in support of the koruna, while in July-August 1997 it purchased foreign exchange to prevent the koruna from appreciating to what was perceived to be an unsustainable level. The CNB has occasionally attempted to influence foreign exchange markets by "talking down" the exchange rate from levels that were perceived as unsustainable (thereby reducing the need for costly interventions). Finally, for a very brief period during the May currency crisis, banks were instructed to stop lending korunas to nonresidents; however, the restriction was not enforced strictly and did not generate a wedge between the domestic and offshore markets.[38]

72. The **monetary policy stance** has been tight since mid-1996, despite pressures from the restructuring of small banks. This is manifested in the sharp deceleration of money and credit expansion, the rise in real interest rates, and a rise of broad money velocity, as the pass-through of the depreciation and the administrative price increases were only partially accommodated. In particular:

- In mid-1996, after capital inflows had dried up, the CNB raised interest rates and required reserves, generating a rapid deceleration of money growth from 20 percent at mid-1996 to less than 10 percent by end-1996 and below 8 percent in 1997. The increase of the interest rate differential vis-à-vis euromarkets led to a temporary appreciation of the koruna and contributed to the slowdown of 12-month inflation by 2 percentage points as of early 1997. But with inadequate support from fiscal and other macroeconomic policies, monetary tightening did not prevent a further widening of the current account imbalance.

- In early 1997, the slowdown of GDP growth (to which the monetary tightening contributed) generated political pressures for monetary relaxation. In the context of the fiscal and structural reform policy package announced in April 1997, the CNB reduced required reserves by 2 percentage points (while encouraging banks to keep lending rates unchanged and raise deposit interest rates) and relied on sterilization operations to keep the stance of monetary policy unchanged. In the event, weak fundamentals, uncertainty about the future stance of monetary policy, and contagion effects contributed to a weakening of the koruna and set the stage for the May 1997 currency crisis.

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[37]Since December 1997 the CNB started releasing, with a two month lag, information on its foreign exchange market interventions.

[38]Such restrictions are difficult to enforce and can prove costly if they raise the risk premium on the currency. However, they are a useful second-best instrument in periods of extreme turmoil. They are akin to automatic circuit breakers in stock exchanges.

- After the May 1997 depreciation, monetary policy was tightened again by raising interest rates and mopping up liquidity. After an initial blip, interest rates were kept 2 percentage points above their pre-crisis level and were raised further in the last quarter of 1997 to fend off pressures on the koruna that stemmed from the turbulence in international financial markets and domestic political uncertainty. Fiscal policy was also tightened during this period.

C. Exchange Rate Developments

73. The koruna has experienced a considerable swing since mid-1996 (Figure 11): following the widening of the fluctuation band to ±7½ percent around the currency basket it first appreciated to almost 6 percent *above* its central parity (February 1997); then weakened rapidly as market sentiment was reversed; came under a strong speculative attack (May 1997), depreciating to 11 percent *below* its central parity; and has been volatile since then, falling at its trough (in November 1997) to 15 percent *below* its (former) parity. High interest rates—the result of an unbalanced policy configuration (heavy reliance on monetary tightening with insufficient support from fiscal and wage policies)—and lagged market response to deteriorating fundamentals lie behind the initial appreciation. Meanwhile, contagion effects from turbulence in Southeast Asia and political uncertainty at home exacerbated the depreciation pressures on, and volatility of, the koruna since the second quarter of 1997. In late January 1998, the koruna was trading at 12-15 percent below its former central parity (around CZK 19½ per DM 1), which represented a depreciation of less than 6 percent against the average rate in 1995 (still a real appreciation).

Koruna Appreciation and Subsequent Correction (June 1996-April 1997)

74. The appreciation of the exchange rate in late 1996 and early 1997 was driven by capital inflows attracted by the high interest rate differential vis-à-vis euromarkets (8½ percentage points)[39] and a history of exchange rate stability. A surge in Eurokoruna bond issues (US$2 billion) in early 1997 contributed to the appreciation of the koruna to the extent that issuers covered their positions with domestic assets.[40] The CNB did not intervene in the foreign exchange market during this period so as to avoid increases in liquidity, which would

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[39]Government bonds became more attractive to foreign investors in 1997 with the abolition of their tax-exempt status for residents, a measure that raised the *gross* return for domestic investors and the *net* one for foreign ones.

[40]Eurokoruna bond issues did not affect the exchange rate to the extent that they were (i) not covered with domestic assets or (ii) used to cover *existing* asset positions of the issuer in koruny (these had already put pressure for appreciation at the time the koruny claim was created).

have either derailed the monetary target or necessitated costly sterilization operations; instead, it tried to guide the koruna toward parity by issuing statements that the appreciated exchange rate was inconsistent with fundamentals.

75. The deteriorating external deficit (Figure 11) did not raise market concern until February 1997. But at that time, the appreciation of the koruna to 5½ percent above parity; forecasts that the current account deficit might widen further, to 9 percent of GDP; and weakening economic activity sparked a public debate about the deteriorating cost competitiveness; there were also government calls for monetary relaxation. These factors focused markets more on fundamentals, reversed capital inflows, and induced foreign investors to switch to shorter maturities, leading to a rapid depreciation of the koruna. A fiscal retrenchment and structural reform package announced in mid-April failed to reverse market sentiment, political uncertainty increased, and by mid-May the koruna had depreciated by 8 percentage points to 3 percent below its former central parity from its peak three months earlier. Waning confidence shows up in tests of the sustainability of the exchange rate band (Annex III).

May 1997 Currency Crisis

76. Contagion from Southeast Asia (owing to rebalancing of international portfolios after the currency attacks on the Thai baht and other emerging country currencies, and expectations of higher interest rates in Japan) exacerbated the depreciation pressures and triggered an attack on the koruna in mid-May.[41] The CNB resisted these pressures through foreign exchange interventions and interest rate increases but not to the extent of compromising its reserve position or the financial position of banks and enterprises. On May 27, after evidence that residents were also taking large positions against the koruna (e.g., by switching to foreign currency deposits) the CNB abolished the fluctuation margins in favor of a *managed float*, and allowed the koruna to depreciate to about 12 percent below the former central parity; while on May 28, the coalition government announced additional stabilization and reform measures, including further expenditure cuts of ¾ percent of GDP. (A day-to-day account of the crisis and the policy response is provided in Annex IV).

77. The floating of the koruna was decided after intervention sales of US$2½ billion in the previous week and steep increases in interest rates (to 75 percent for the CNB's two-week repo and to 35 percent for the three-month PRIBOR). The CNB did not resort to exchange

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[41]Contagion affected the koruna more than the currencies of other neighboring transition economies because of the greater openness and globalization of the Czech economy, and political uncertainty, which by coincidence happened to increase each time there was turmoil in international financial markets. Several indicators of external vulnerability for the Czech economy were not significantly different from those for neighboring transition economies but were definitely better than those in Southeast Asian countries (Chapter VI).

controls, nor did it strictly enforce an instruction to banks (in effect during May 22-June 17) barring koruna lending to non-residents; as a result, there was no significant interest or exchange rate differential with the offshore market. The CNB temporarily borrowed from a local branch of a foreign bank[42] and engaged in gold swaps (for US$1 billion in total) to keep its gross reserves at around US$10 billion; and arranged—but has not used—a one-year US$2 billion credit line with foreign banks on favorable terms (10 basis points over LIBOR) in order to demonstrate market confidence and readiness to intervene if needed. The CNB did not engage in significant forward sales of foreign exchange against the koruna, and all such contracts had matured by September 1997.

78. The handling of the currency crisis was complicated by the short (two-week) maturity of money market instruments: When the koruna came under attack, banks did not renew the repos upon maturity despite the increase of interest rates; instead, they switched to foreign assets exacerbating the pressure on the koruna. In an effort to address this problem, the CNB introduced three-month repos in September.

The Aftermath of the Currency Crisis (June 1997-January 1998)

79. For four months after the May attack, the CNB stabilized the koruna within a 6–12 percent range below its former central parity, despite renewed turbulence in Southeast Asia and extensive floods in July 1997. The CNB took advantage of appreciation pressures, which reflected an unwinding of speculative positions, to gradually lower interest rates and purchase foreign exchange to prevent an unsustainable appreciation. As a result, the three-month PRIBOR declined to 14½ percent by July 1997 (2 percentage points above its pre-crisis level), while official reserves recovered to US$11½ billion at end-September (Figure 12). New euro-koruna bond issues during 1997 Q3 were further indications of strengthening market confidence.

80. The koruna came under renewed pressure in the last quarter of 1997 owing to political uncertainty and contagion effects, which necessitated temporary interest rate increases and intervention sales of foreign exchange. The CNB raised its two-week repo rate by a cumulative 4½ percentage points and intervened in the foreign exchange market, while allowing some further weakening of the koruna. By mid-December, the CNB had largely reversed the repo rate increases of the preceding two months, while the three-month PRIBOR was about 16½ percent (13 percentage points higher than DM interest rates). In the latter half of January 1998, the koruna was trading at around 12-15 percent below its former central parity. Given the strengthening of the U.S. dollar, this represents a less than 6 percent depreciation of the koruna against the DM since 1995, implying that had the koruna been

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[42]The DM 1 billion loan from the local branch of Commerz bank was contracted on May 31, 1997 and was recorded in the CNB's balance sheet on June 1. The loan, which was paid off in September, did not affect net foreign assets as it was recorded as a foreign liability.

pegged to the DM at the average 1995 level, it would have been possible to maintain the ±7½ percent band (provided that the appreciation of early 1997 was addressed via sterilized interventions).

81. In response to the higher exchange rate uncertainty since the May crisis and concerns that the koruna might weaken further, commercial banks reduced sharply their net foreign liability position by reducing their holdings of koruna-denominated instruments and holding back on credit expansion (Figure 13). Since October, banks increased rapidly their short-term foreign assets while a restriction of their net foreign liability position was abolished.[43]

D. Developments in Broad Money and Domestic Credit

82. After growing at an annual rate of almost 20 percent in each of the three preceding years, **broad money**[44] decelerated sharply to 9 percent in 1996 and even further in 1997. The deceleration was entirely the result of a deceleration in the growth of banking system NFA: its contribution to broad money growth has turned from large and positive (about 11 percentage points) during 1993–95 to negative since mid-1996, particularly so in May 1997, when the CNB intervened in support of the koruna. The contribution of NFA picked up again in late 1997, as commercial banks built up their foreign assets in response to increasing exchange rate uncertainty (Table 9, Figure 14).

83. Technical factors—namely the expansion of deposit-like instruments, valuation effects, and the removal from the monetary survey of banks whose license had been suspended—have also contributed to the deceleration of money growth, but their impact has been of a second order of magnitude and does not invalidate the general conclusion of a rapid monetary deceleration.[45]

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[43]The restriction, introduced in August 1995 to discourage capital inflows, stipulated that short-term foreign liabilities or banks toward nonresidents may not exceed their corresponding claims by more than 30 percent, or in any case CZK 500 million. This restriction reportedly became ineffective as banks were able to evade it through legal means.

[44]Broad money *includes* deposits of several extrabudgetary organizations, accounting for about 3¾ percent of broad money at end-1996; it *excludes* short-term securities held by nonbanks, which amounted to 3 percent of broad money at end-1996; it *excludes* bank bonds and mortgage bonds; it also *excludes* the counterpart of the SPT Telecom deposit with the CNB related to the US$1.33 billion payment by a Dutch-Swiss consortium for a 27 percent stake in SPT (the deposit was used up in November 1997). End-of-year broad money figures are adjusted for temporary swings in the float.

[45]*Deposit-like instruments* with a maturity of less than one year (CNB bills, Treasury-bills

(continued...)

84. The weakening of the koruna in 1997 prompted a shift toward foreign exchange deposits and, within local currency deposits, toward term deposits (Figure 15). **Foreign exchange deposits** expanded rapidly in 1997 and especially during the second week of the currency crisis, when residents were queuing to convert koruna into foreign exchange deposits (increases, net of valuation effects, were 34 percent in May and 5 percent in June 1997, raising their share in broad money to 11 percent). The **shift from demand to term deposits** was in response to the higher interest rates on the latter. Demand deposits made a negative contribution to M2 growth while term deposits (especially of households) accounted for most of its increase. During the currency crisis, M2 growth accelerated as (i) the structure of interest rates made it profitable to borrow from banks and place the proceeds of the loan in short-term deposits; and (ii) several enterprises stopped making payments and placed their funds in bank accounts to take advantage of the prevailing high interest rates (which exceeded penalty rates). With interest rates remaining above their pre-crisis level, the shift toward term deposits was sustained.

85. With the reversal of capital inflows and the policy tightening in 1996-97, the **velocity of broad money**[46] rose to its 1994 level (Figure 10). After declining by 2 percent in the last quarter of 1995 as a result of soaring capital inflows (20 percent of quarterly GDP), velocity rebounded in the second half of 1996, as excess liquidity was run down through a widening current account deficit. With the deceleration of GDP growth and a temporary pick-up of monetary expansion, velocity declined in the first half of 1997 (but it was still 1.2 percent higher than a year earlier). The increase in the second half of 1997 relates to the running down of excess liquidity and the partial accommodation of the pass-through of the depreciation on prices.

86. Bank credit to the economy (enterprises and households) has been the main force driving the deceleration of the banking system NDA; increased government borrowing moderated the deceleration. Except for a relapse in the second quarter of 1997, the 12-month growth rate of bank credit declined from 14 percent in the first half of 1996 to 9½ percent in

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[45](...continued)
and National Property Fund bills held by nonbanks) amount to about 3 percent of broad money; their inclusion in broad money would have raised its growth rate by ½ percentage point. *Valuation effects of exchange rate changes* have contributed 0.2 percentage point to the *deceleration* of broad money growth in 1996 but have *added* 1.2 percentage points to broad money growth since May 1997. Finally, the *removal of banks whose license had been suspended* from the monetary survey (as of January 1997) contributed another 0.6 percentage point reduction in broad money growth.

[46]Velocity is defined as annualized quarterly real GDP times the quarterly average of CPI over end-of-quarter broad money. All variables are adjusted for seasonality.

1997, in line with the tightening of monetary policy and banks' increasing caution in their lending practices; a significant part of new deposit taking was invested in low-risk bonds (including foreign bonds). The deceleration is sharper (from almost 20 percent in 1994-95 to 10 percent in 1997), if adjustment is made for direct foreign borrowing by enterprises.

87. The **composition of bank credit** has changed toward (a) foreign currency credits (b) adjustable interest rate credits, and (c) relatively shorter maturities. The higher share of foreign currency lending reflects increased bank borrowing from abroad and the need to hedge the increasing foreign exchange deposits. The increased share of credits at adjustable interest rates (about one half as of mid-1997) reflects the banks' attempt to hedge their interest rate risk (transforming, in part, the interest rate risk into credit risk). Finally, the declining share of long-term credits is associated with the stalling of investment as a result of the higher interest rates and the economic slowdown.

E. Developments in Reserve Money and the Conduct of Monetary Policy

88. With monetary tightening, **reserve money** growth decelerated from 26 percent in 1995 to 11 percent in 1996, and -1 percent in 1997.[47] In a complete *reversal* relative to previous years, when capital inflows were the driving force, reserve money developments were driven in 1996-97 by the decline of NFA, which more than offset a pickup in domestic credit. In particular, after three consecutive years of rapid foreign reserve growth, the NFA of the CNB *declined* by 8 percent of reserve money in 1996 and by another 41 percent in 1997, excluding valuation effects (Figure 14). Meanwhile, the expansion in domestic credit changed from large and negative to positive, owing to the reversal of sterilization operations out of concern about CNB profitability, lender of last resort and bank restructuring operations, and increasing credit to government (Table 10). And, owing to the greater variability of banks' excess reserves, the money multiplier became more volatile (Figure 16).

89. **Sterilization operations**, the driving force behind the evolution of NDA, took the form of sales of CNB bills and the transfer of public sector (NPF and SPT Telecom) deposits from commercial banks to the CNB and increases in non-remunerated required reserves (which do not involve a direct cost for the CNB other than the opportunity cost of investing these funds in foreign assets rather than higher yielding domestic assets). The cost of sterilization operations reflects the combined effect of the total volume of sterilization and the opportunity cost of holding low interest rate foreign assets. The *volume* of sterilization through CNB bills and the transfer of public sector deposits to the CNB, which had averaged

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[47]The rate of change is calculated at constant required reserves ratio using the beginning of period required reserves ratio as a reference point.

CZK 157 billion in 1996, dropped to CZK 139 billion in 1997 [48] (Figure 17). The cessation of capital inflows in early 1996 allowed the CNB to redeem part of the stock of outstanding CNB bills and a further reduction was made possible by the increase in the required reserves ratio as of August 1996.[49] These sterilization operations is estimated to have *cost* the CNB CZK 12½ billion (0.8 percent of GDP) in 1996 and CZK 16 billion (1 percent of GDP) in 1997.[50] The higher sterilization cost in 1996, along with the cost of restructuring banks and the appreciation of the exchange rate, account for most of the 1996 CNB losses of CZK 8.7 billion. For 1997, the CNB should have a surplus, as (unrealized) valuation profits from the depreciation of the koruna are likely to exceed sterilization costs and the cost of interventions in the foreign exchange market.

90. The weakening economic activity in 1997 and the support pointed to troubled banks put pressure on, but did not lead to a relaxation of, the monetary policy stance. In particular:

- As a compromise between the government, which was pressing for monetary relaxation in response to the slowdown of economic activity, and the CNB, which wanted to maintain interest rates, the *non-remunerated* reserve requirement was reduced by 2 percentage points, to 9.5 percent (announced in March 1997 with effect as from May 8); and the CNB encouraged commercial banks to keep unchanged their lending interest rates and raise their deposit rates. The measure added CZK 20 billion to bank liquidity, which was offset by the import deposit scheme[51] that was in place

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[48]During the May 1997 currency crisis banks did not renew their repos of CNB bills, causing the volume of sterilization to decline to CZK 125 billion. In the third quarter it picked up to CZK 160 billion.

[49]The total volume of sterilization (including through required reserves) dropped by less: from CZK 224 billion in 1996 to CZK 213 billion in 1997 or, respectively, from 103 percent to 89 percent of reserve money. The cost in relation to GDP was, respectively, 1⅛ percent and 1½ percent.

[50]Cost calculations were based on the assumption that the yield on NFA equals the weighted average interest rate on three-month interbank deposits in Frankfurt and the three-month Treasury-bill rate in the United States, while the interest rate on CNB bills and on deposits by SPT Telecom and NPF equals the three-month PRIBOR (Prague Interbank Offered Rate).

[51]The import deposit scheme (April-August 1997) was administered by the Consolidation Bank. It involved a six-month deposit equal to 20 percent of the value of imports; it applied to selected consumer goods and foodstuff amounting to about 30 percent of all imports and yielded CZK 10.5 billion in blocked deposits; of this amount half was on-lent to enterprises while the remaining part was deposited with the CNB and appeared as higher excess reserves of banks (thus lowering the money multiplier and raising base money). Upon its dismantling,

(continued...)

from April to August 1997, and the contractionary effect of the capital outflows. Moreover,

- The liquidity support and rehabilitation of troubled banks showed up as emergency credits (mainly to Agrobanka); rehabilitation credits to small banks, contingent on their adopting a restructuring plan (Figure 18); and credits to Ceska Financni for the purchase of bad loans from banks participating in the CNB-sponsored restructuring program. These two factors contributed 12 percentage points to base money growth in 1997.

F. Interest Rates

91. The tightening of monetary policy since mid-1996 and pressures on the koruna in 1997 jolted interest rates by several percentage points over the past two years. **Interbank interest rates**, which are more sensitive to market conditions, were affected the most, registering a cumulative increase of 6 percentage points. They rose in three spurts: first, by 1 percentage point to 12½ percent in mid-1996, when monetary policy was tightened; they soared (especially short-term rates) during and immediately after the May 1997 currency crisis but within three months they eased to 14½ percent; after rising again sharply during the October-November turbulence in international capital markets, they eased by mid-December to about 17 percent, a further 2½ percentage point increase (Figure 19, Table A31, SM/98/30, Sup. 1, (1/30/98)). As a result, the differential between the PRIBOR and the German interest rates doubled to 13 percentage points at end-1997 from 6 percentage points two years earlier. The higher interest rate differential has contributed to the relative stability of the koruna since the May crisis.

92. The interbank money market has developed rapidly over the past few years and has become well integrated in international financial markets, as indicated by the fact that the koruna is by far the most actively traded currency in the CEE. As a result, interbank interest rates are influenced significantly by capital movements and area by hedging operations related to Eurokoruna bond issues; in particular, the decline in early 1997 of interbank interest rates with a maturity of three months or more is attributed to the surge of Eurokoruna bond issues.[52] Instruments of two-week maturity account for more than 90 percent of total

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[51](...continued)
CZK 10.5 billion was returned to importers.

[52]In addition to the interbank market, issuers of Eurokoruna bonds have also used government securities to hedge their exchange rate risk. These securities became more attractive to nonresidents in 1997 with the introduction of a 25 percent withholding tax (from which nonresidents are exempt). In 1996-97 T-bills accounted for the bulk of trading in the money

(continued...)

activity in the interbank money market, owing to the use by the CNB of two-week repos on its bills as the principal intervention instrument. This enables the CNB to have an immediate effect on interbank interest rates.[53] Moreover, as the correlation between interbank rates and the rates on new credits is close and improving over time (Figure 20), this gives the CNB a good handle on bank lending interest rates.

93. The rise of interbank interest rates has pushed up **interest rates on new credits** by almost 3 percentage points over the past two years; by end-1997 they had reached 16 percent; (Table A30, SM/98/30, Sup. 1, (1/30/98)). Relative to producer prices this corresponds to a real lending rate of 10 percent, which is in line with interest rates in other CEE countries and countries whose currencies came under pressure in 1997. Lending interest rates differ across the various types of borrowers and the pattern has changed over time (Figure 21). In particular, foreign-controlled enterprises (which account for less than 10 percent of borrowing) tend to borrow at lower interest rates and the distribution of interest rates tends to be less dispersed; this probably reflects the better credit rating of these enterprises which also have access to foreign borrowing at lower interest rates. On the other hand, the interest rate distribution of new credits to domestic enterprises tends to be multimodal and relatively more dispersed, a reflection of greater heterogeneity across borrowers; there is no substantial difference between private and publicly controlled enterprises. An important feature of the interest rate distribution of bank credit is that 14 percent of outstanding credits earn an interest rate of 1 percent or less; mostly, these are loss loans on which the interest rate was reduced so as to protect banks from having to pay income tax on accrued interest income (Figure 22). Old mortgage loans to households which are subsidized by the state budget account for the concentration of loans in the interval of 2-3 percent interest.[54]

94. The average real **deposit rate** has been negative, although less so relative to previous years; particularly negative have been interest rates on sight deposits. On the other hand, term deposits, which are more closely related to interbank interest rates, have exceeded consumer price inflation by about 3 percentage points and this must have contributed to their increasing share in total deposits (Figure 23).

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[52](...continued)
market. Nonresidents may not hold CNB bills.

[53]When the maturities of the instruments are short, the discrepancy between the average and the current interest rate is small. Thus, a change in *current* money market conditions raises quickly the *average* interest rate which, being closely related to the cost of funding, transmits the change to the interest rate on new credits.

[54]These loans were extended prior to 1989 and carry fixed interest rates, ranging from 0.7 percent to 2.5 percent.

95. With the 3 percentage point rise in required reserves in August 1996, the spread between lending and deposit interest rates increased in the second half of 1996 by almost ½ percentage point, reaching 6 percentage points; however, it fell in early 1997 on account of declining lending rates and reached 5.3 percentage points in April. After increasing to almost 6 percentage points during the currency crisis (despite the reduction of the reserve requirement by 2 percentage points), the spread declined again to 5½ percentage points and remained at that level until the end of the year. The high non-remunerated reserve requirement and credit risk (reflected in the high share of classified loans) contribute to the high spread between lending and deposit rates (See also Chapter V).

G. Stock Market

96. Contrary to the money market, which is the most developed among European transition economies and the best integrated with international financial markets, the capital market is plagued by fairly low liquidity, opaqueness, and inadequate regulation, all of which discourage investors (foreign and domestic). The Prague Stock Exchange performed poorly in 1997 (relative to the stock exchanges in neighboring Hungary and Poland), reflecting low interest on the part of foreign investors and contagion from turbulence in international financial markets. The PX50 index (which monitors the shares of the 50 largest companies by market capitalization) declined by 8 percent in koruny terms (20 percent in terms of DM) in 1997 to about half its 1994 level (Figure 24). Stock prices followed a roller coaster path during 1997: a rally earlier in the year was reversed amid growing concern about the sustainability of the exchange rate peg and reports of mismanagement in several investment firms. In the last quarter of the year stock prices were hit by the retreat of foreign investors from emerging markets (contagion from Southeast Asia), political uncertainty, and concern about continuing sluggish economic activity.

Table 9. Czech Republic—Contributions to Broad Money Growth

(Percent change in relation to broad money at the beginning of the year)

	1993	1994	1995	1996	1997	1996 I-II	1996 III-IV	1997 I	1997 Apr.-May	1997 June-Sep.	1997 Oct.-Dec.
M2 1/	19.8	19.9	19.8	9.2	7.9	4.1	5.1	-1.6	3.4	1.6	4.4
Of which:											
Valuation effects	--	--	--	-0.2	1.3	--	-0.2	0.1	0.8	-0.2	0.6
NFA	9.5	11.2	10.6	-1.7	6.2	0.6	-2.3	0.2	-0.5	3.4	3.0
Of which:											
Excluding valuation effects	9.5	11.2	10.6	-0.9	2.1	0.7	-1.6	-0.2	-3.2	3.9	1.5
Commercial banks	-6.8	3.6	-7.8	-0.7	11.0	1.3	-2.0	0.4	6.3	-1.6	5.9
CNB	16.3	7.6	18.4	-0.3	-9.0	-0.6	0.4	-0.6	-9.5	5.5	-4.4
NDA	10.3	8.8	9.1	10.9	1.8	3.5	7.4	-1.8	3.9	-1.8	1.4
Domestic Credit	17.6	14.7	13.3	9.9	9.4	5.5	4.4	2.5	5.5	-1.0	2.4
Of which:											
Credit to economy	18.9	16.6	12.7	9.7	9.6	5.5	4.1	1.8	4.8	-0.1	2.1
Other assets, net	-7.3	-5.9	-4.1	1.0	-7.6	-2.0	3.0	-4.3	-1.5	-0.8	-1.0
Of which:											
Profits (-) from exchange rate changes	--	--	--	0.9	-5.1	0.1	0.8	-0.5	-3.4	0.6	-1.8
Memorandum item:											
Target range for M2 growth	17	12-15	14-17	13-16	7-11						

Sources: Czech National Bank and staff calculations.

1/ Excluding the SPT Telecom deposit.

Table 10. Czech Republic—Contributions to Reserve Money Growth

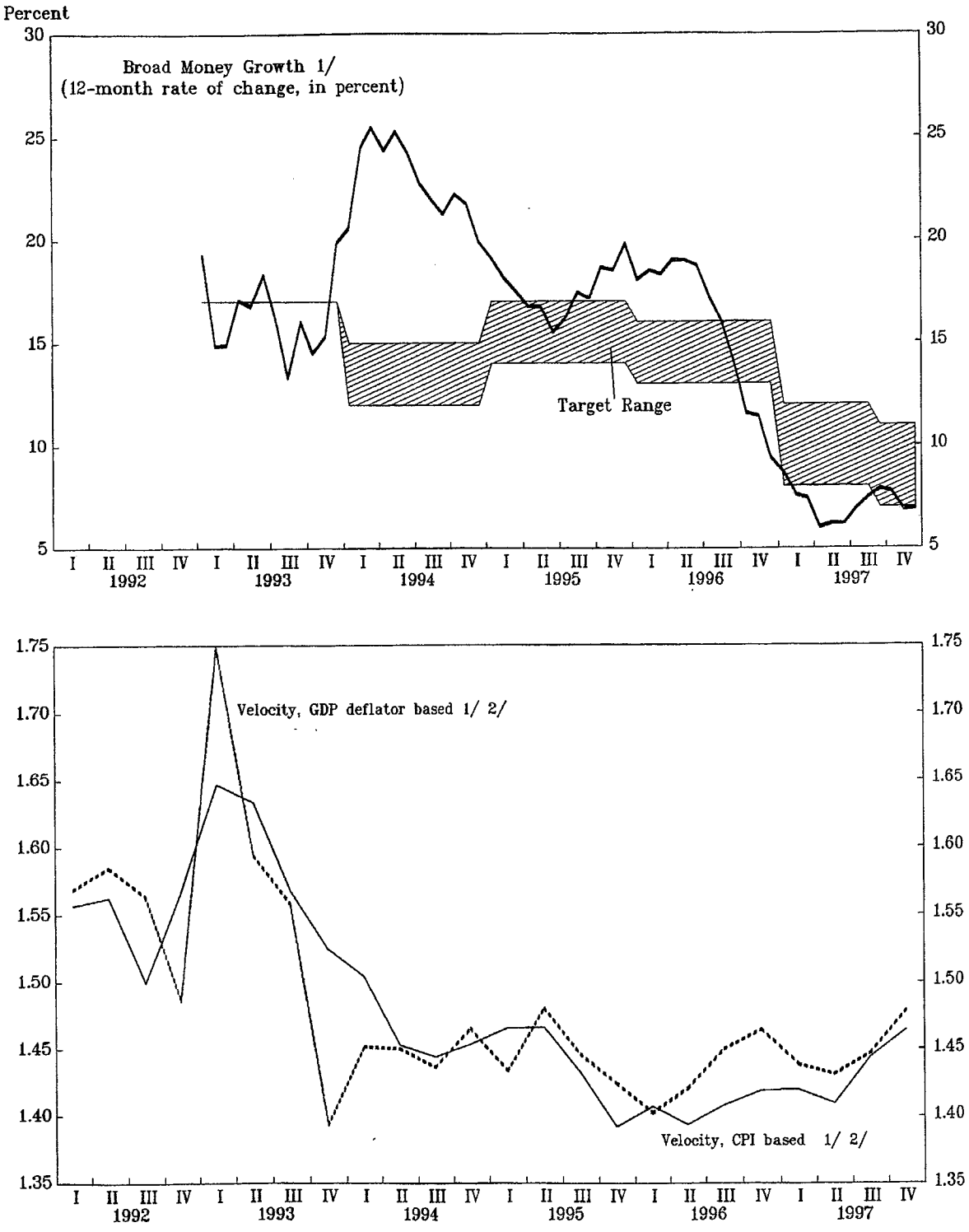
(Percent change in relation to reserve money at the beginning of the year)

	1993	1994	1995	1996	1997	1996 I-II	1996 III-IV	1997 I	1997 Apr.-May	1997 June-Sep.	1997 Oct.-Dec.
Reserve Money 1/	0.6	22.2	26.5	11.3	-0.9	5.0	6.4	--	4.0	-1.6	-3.4
Of which: excess reserves	-7.8	-8.3	3.1	-0.9	-3.6	-1.8	0.9	2.0	1.8	-2.0	-5.3
NFA 2/	58.3	87.0	124.6	-12.3	-22.7	-8.4	-3.9	-1.2	-28.9	20.7	-13.3
Of which:											
Excluding valuation effects	58.3	87.0	124.6	-7.9	-41.5	-7.9	--	-3.4	-42.7	22.7	-18.1
NDA 2/	-57.7	-64.8	-98.1	23.6	21.7	13.3	10.3	1.2	32.9	-22.3	9.9
Domestic Credit	-62.9	-52.1	-75.6	26.4	6.1	28.4	-2.0	1.2	22.8	-25.0	7.1
Government	-18.8	-25.0	-9.5	-6.2	4.5	-10.3	4.1	1.9	3.6	-3.0	2.6
Economy 3/	-2.9	-10.6	-16.4	-3.5	12.5	18.6	-22.1	1.9	0.1	8.3	2.1
Banks	-41.2	-16.5	-49.7	36.1	-10.8	20.1	16.0	-2.0	19.1	-30.3	2.4
Change in required reserves	-0.5	-9.5	-5.4	-17.0	7.9	-2.2	-14.8	-1.2	9.6	-0.8	0.2
Other assets, net 2/	5.6	-3.2	-17.0	14.2	7.7	-12.8	27.1	1.2	0.5	3.5	2.5
Of which:											
Profits (-) from exchange rate changes	--	--	--	4.4	-18.8	0.4	4.0	-2.2	-13.8	2.0	-4.8
Memorandum item:											
Sterilization (-) through sale of CNB bills and transfer of deposits 4/	-24.2	-33.5	-82.9	31.9	-13.8	17.3	14.5	-1.0	16.4	-30.3	1.1

Sources: Czech National Bank and staff calculations.

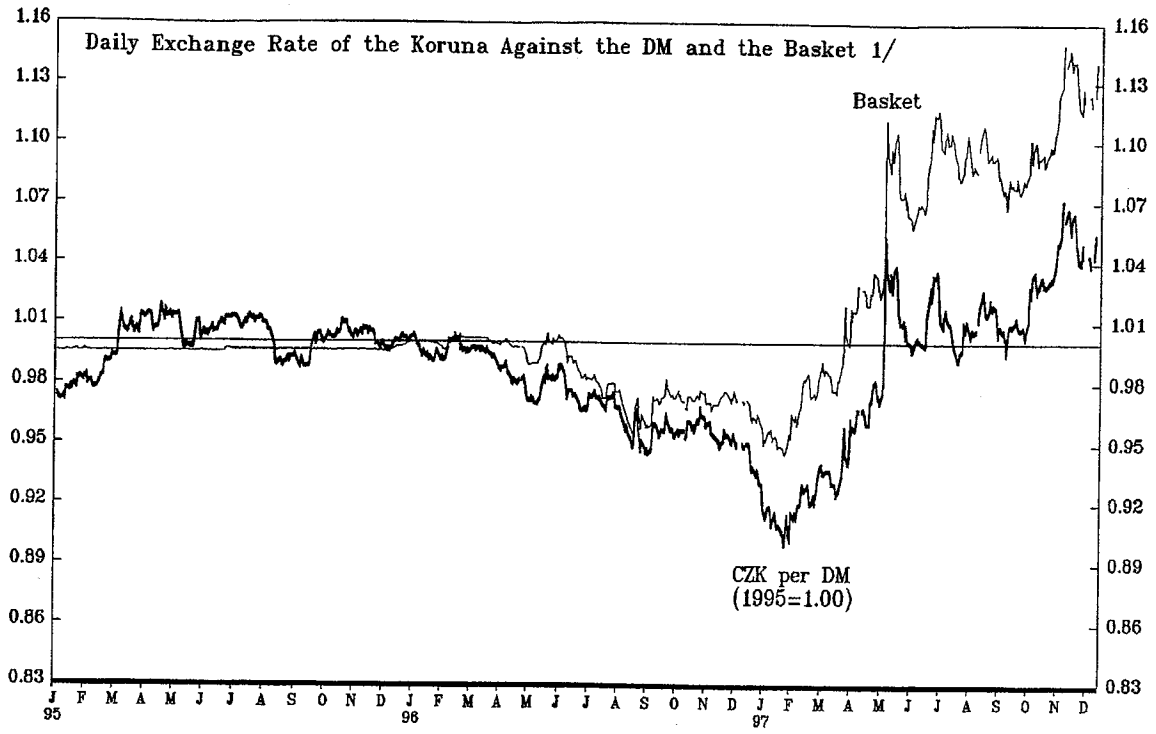
1/ Calculated at unchanged required reserves ratio.
2/ Including the SPT Telecom deposit.
3/ Mainly credits for bank rehabilitation.
4/ The counterparts to this item are included in net claims on the economy and banks.

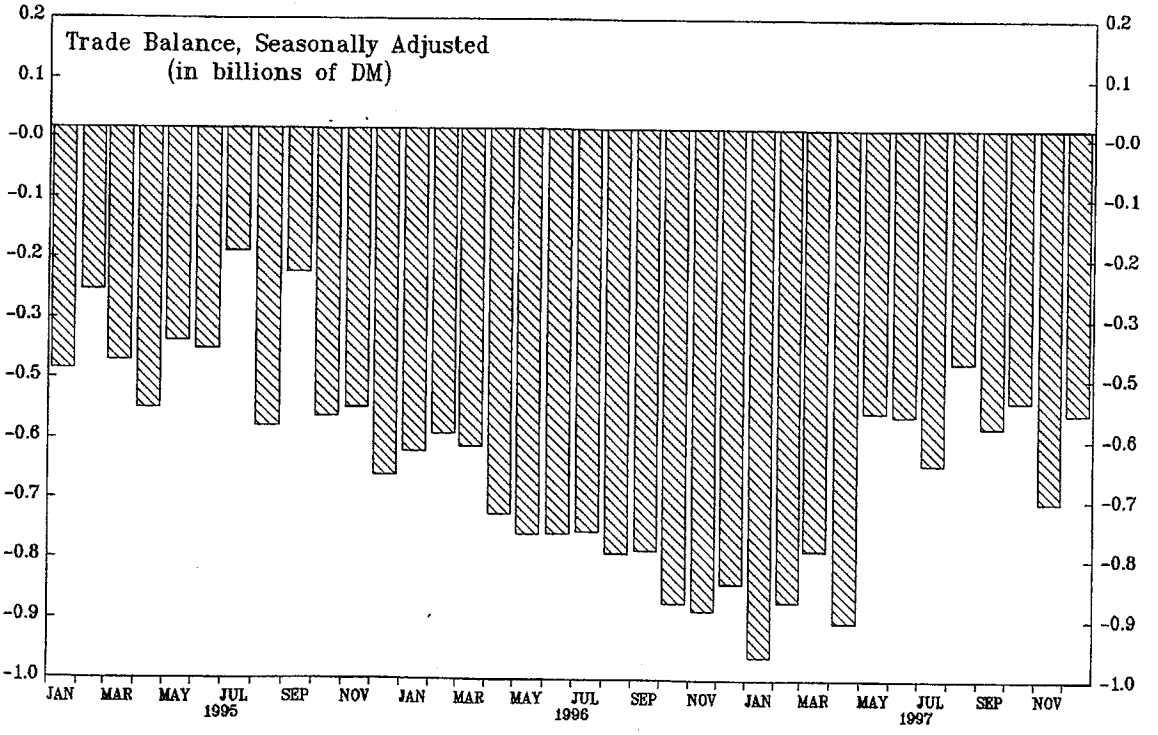
Figure 10
CZECH REPUBLIC
DEVELOPMENTS IN BROAD MONEY (1992-97)



Sources: Czech National Bank; and staff calculations.
1/ Broad money excludes the SPT deposit with the CNB.
2/ Velocity is calculated as annualized seasonally adjusted GDP divided by seasonally adjusted end-of-period broad money.

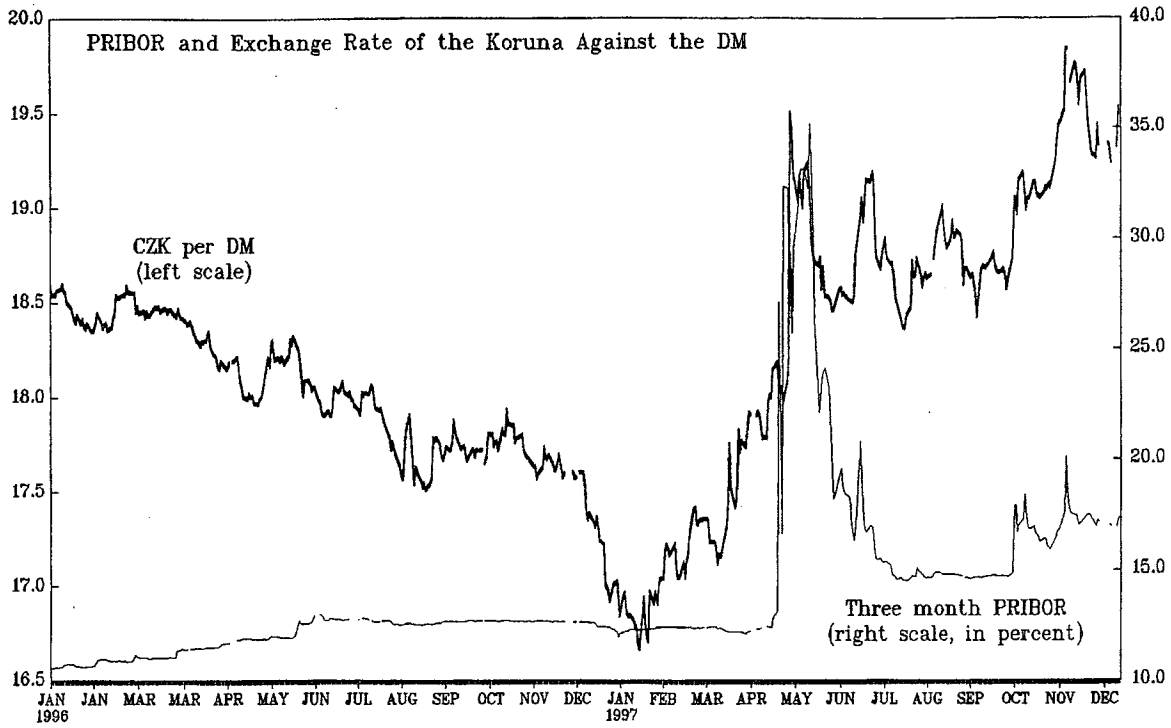
Figure 11
CZECH REPUBLIC
EXCHANGE RATE AND THE TRADE BALANCE

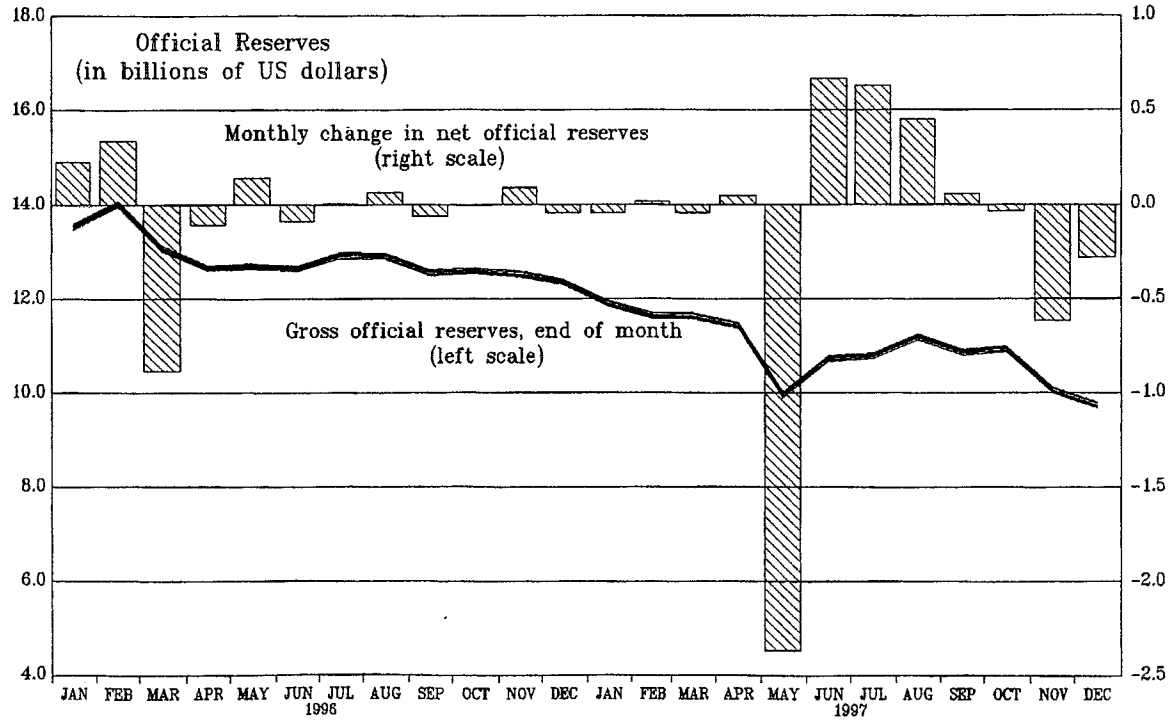




Sources: CNB, Bloomberg, and Fund staff calculations.
1/ The basket consists of fixed amounts of DM and US$ with corresponding weights of about 65percent and 35 percent. Official rates at the CNB fixing are used in thecalculations. Decline indicates nominal appreciation.

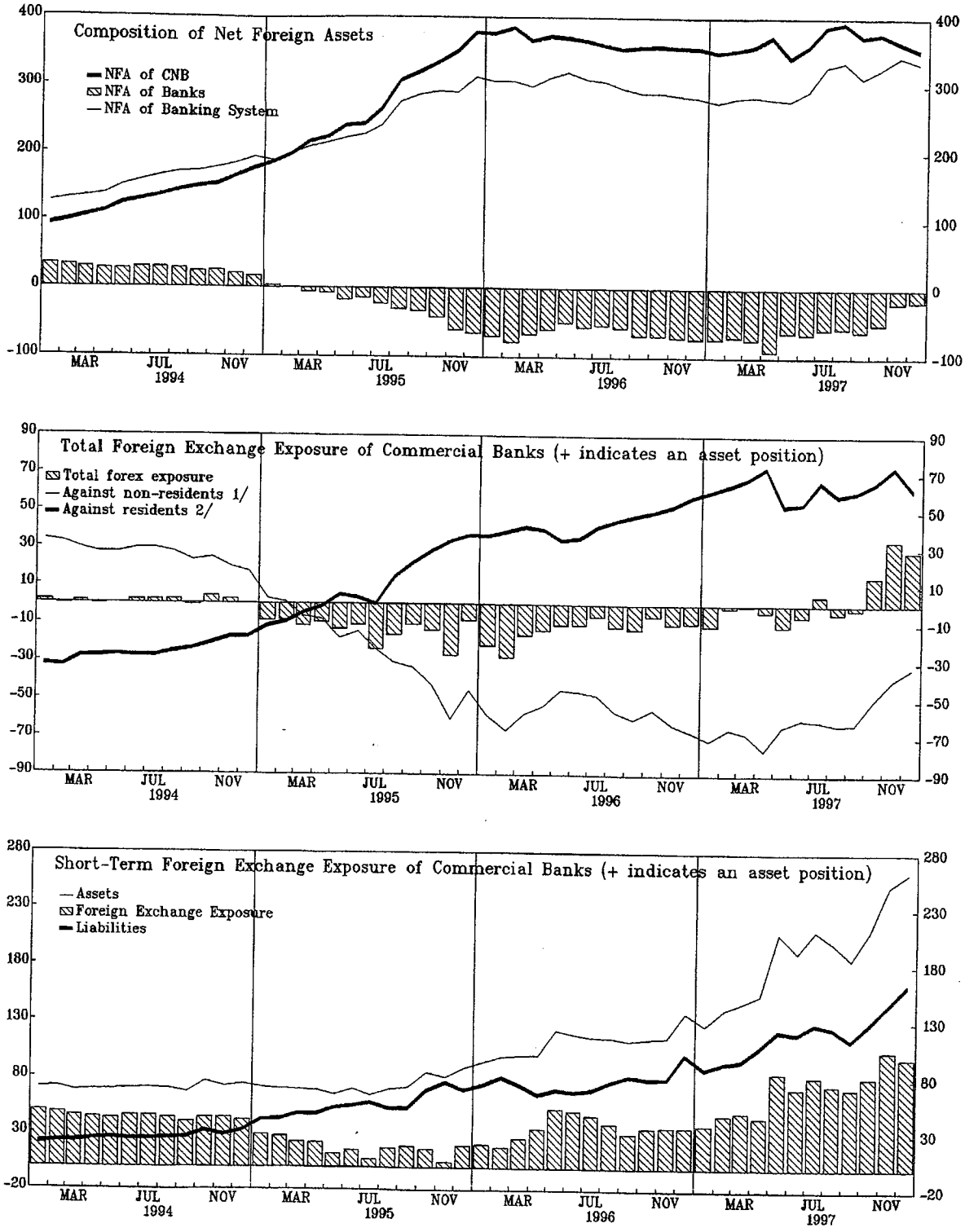
Figure 12
CZECH REPUBLIC
EXCHANGE RATE, INTEREST RATES AND FOREIGN RESERVES





Sources: CNB, REUTERS, and staff calculations.

Figure 13
CZECH REPUBLIC
NET FOREIGN ASSETS
(In Billions of Koruny)

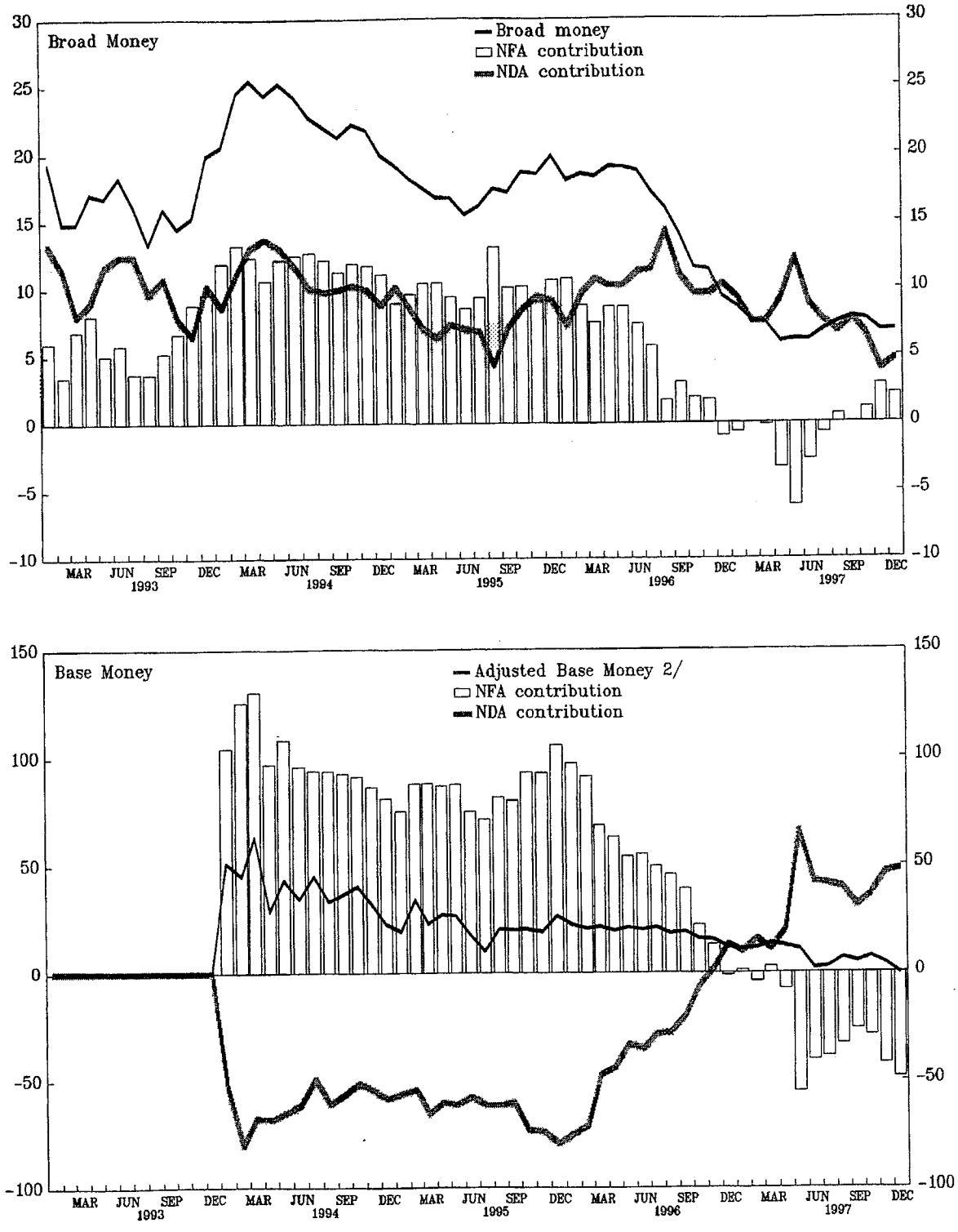


Sources: Staff calculations based on data provided by the Czech National Bank.

1/ The foreign exchange exposure vis-a-vis non-residents is measured by the NFA of commercial banks, excluding off-balance-sheet items.

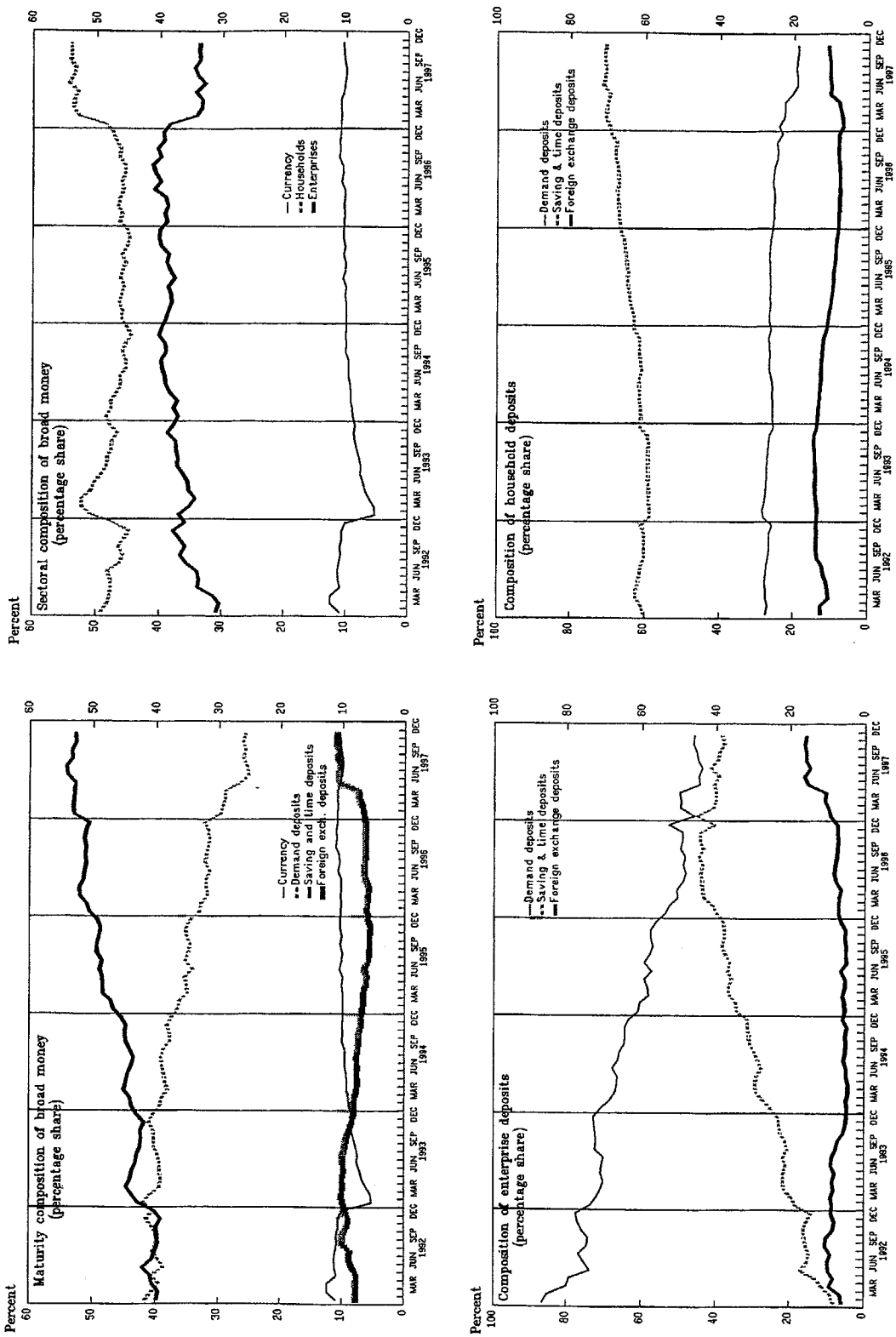
2/ The foreign exchange exposure vis-a-vis residents is measured by the difference between foreign currency loans and foreign currency deposits.

Figure 14
CZECH REPUBLIC
CONTRIBUTIONS TO BROAD AND BASE MONEY GROWTH (1993-97) 1/



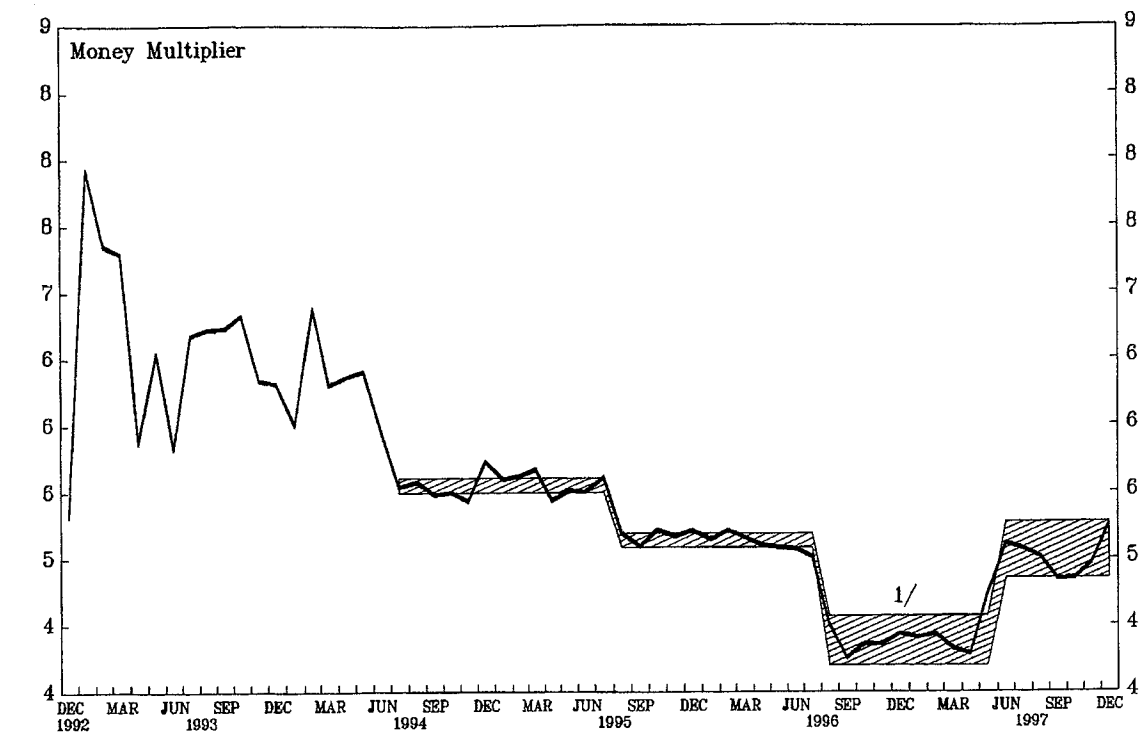
Sources: Czech National Bank; and staff calculations.
1/ In percent of broad money in the same period of the previous year; excluding valuation effects.
2/ Base money growth has been adjusted for changes in the required reserves ratio.

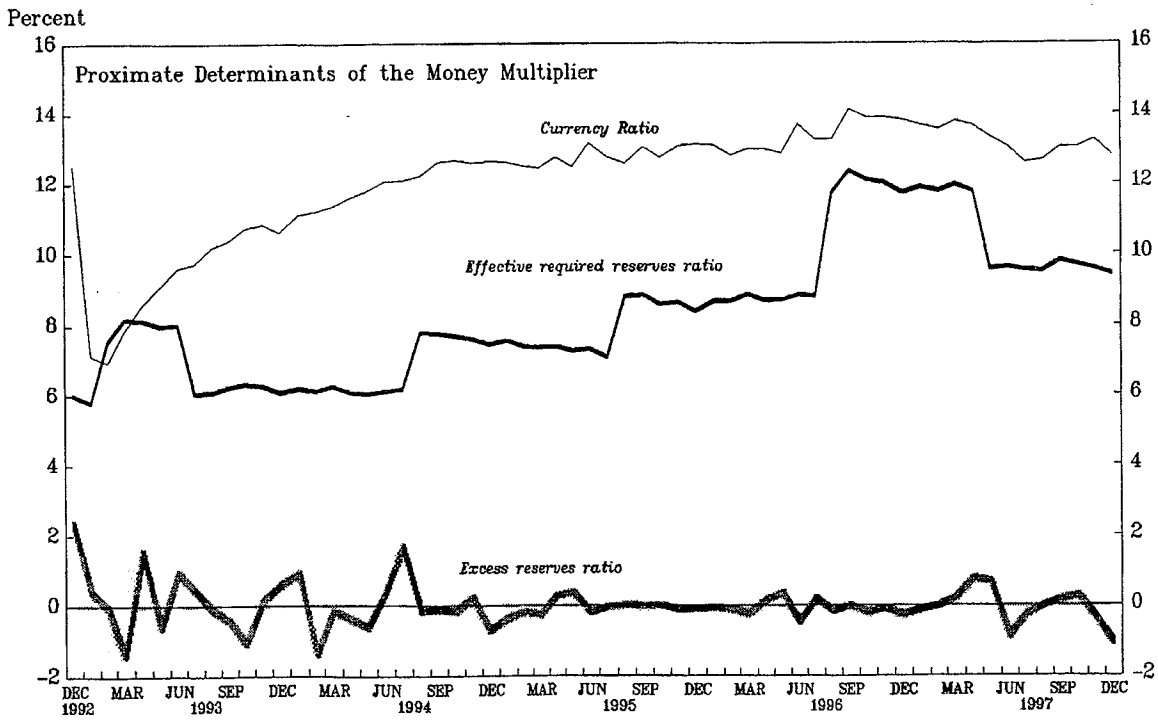
Figure 15
CZECH REPUBLIC
COMPOSITION OF BROAD MONEY



Sources: Czech National Bank, and staff calculations.

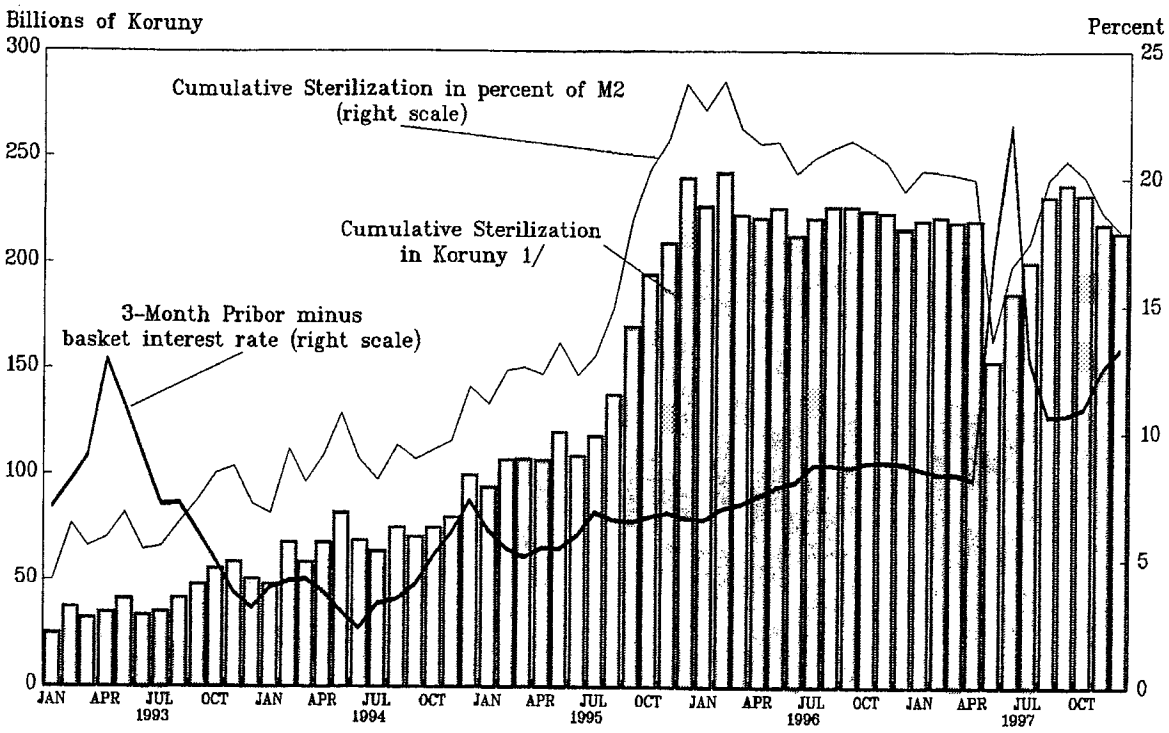
Figure 16
CZECH REPUBLIC
MONEY MULTIPLIER AND ITS DETERMINANTS

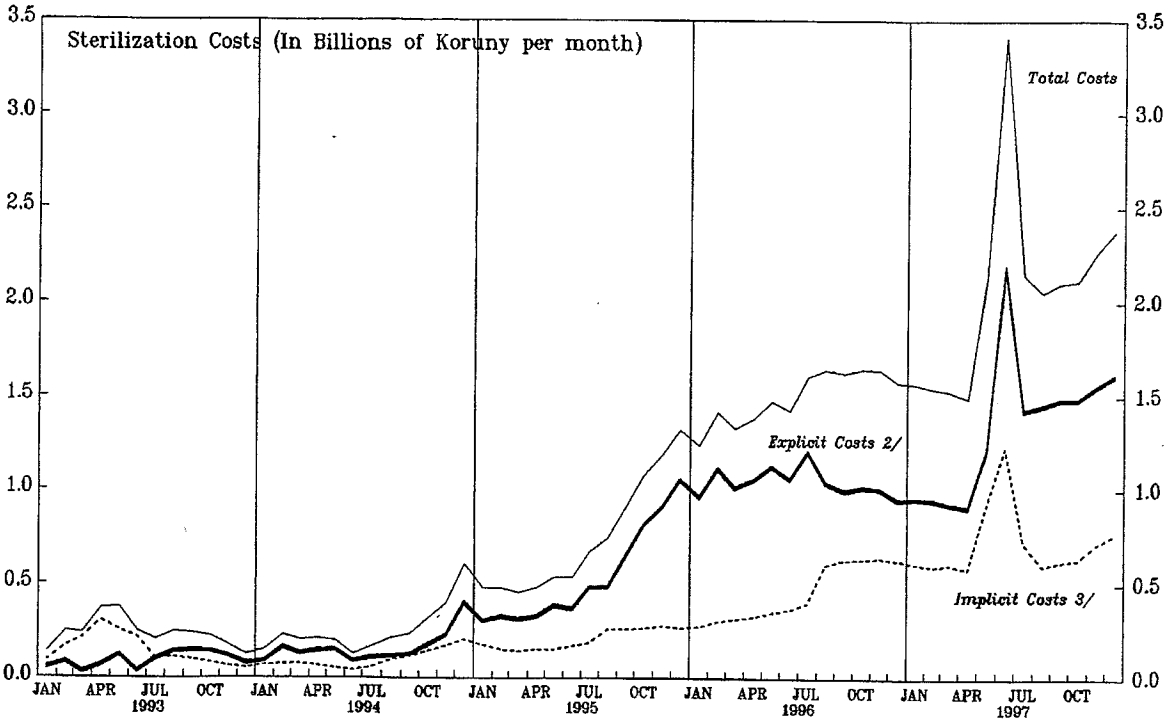




Sources: Czech National Bank; and staff calculations.
1/ The shaded area represents a +/- one percent band around the corresponding period average.

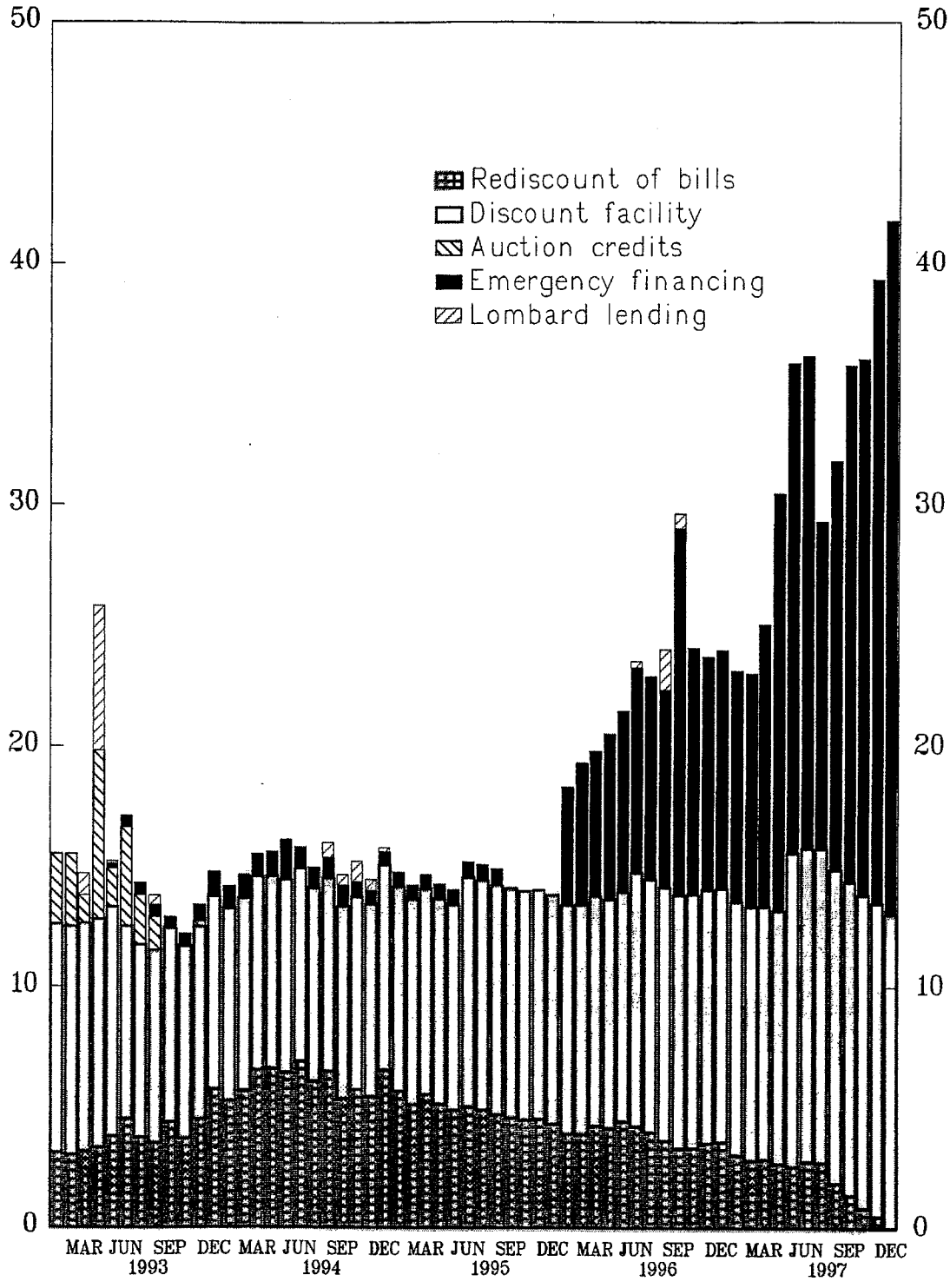
Figure 17
CZECH REPUBLIC
COSTS OF STERILIZING CAPITAL INFLOWS





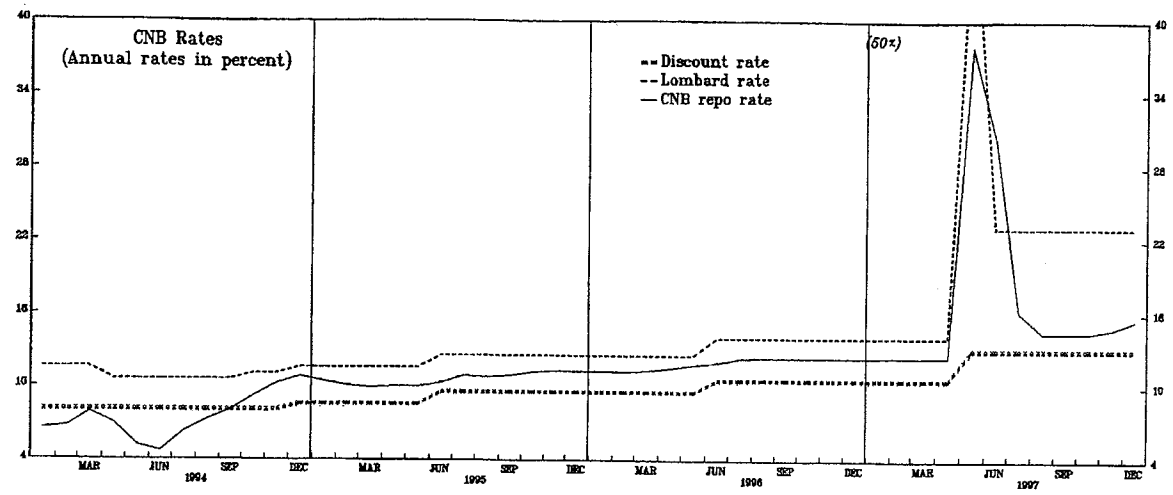
Sources: Staff calculations based on data provided by the Czech National Bank.
1/ Comprises outstanding CNB bills, the transfer of SPT and NPF deposits to the CNB and part of required reserves.
2/ Interest rate differential times the sum of CNB bills and the transfer of deposits to the CNB.
3/ Interest rate differential times the part of required reserves related to sterilization.

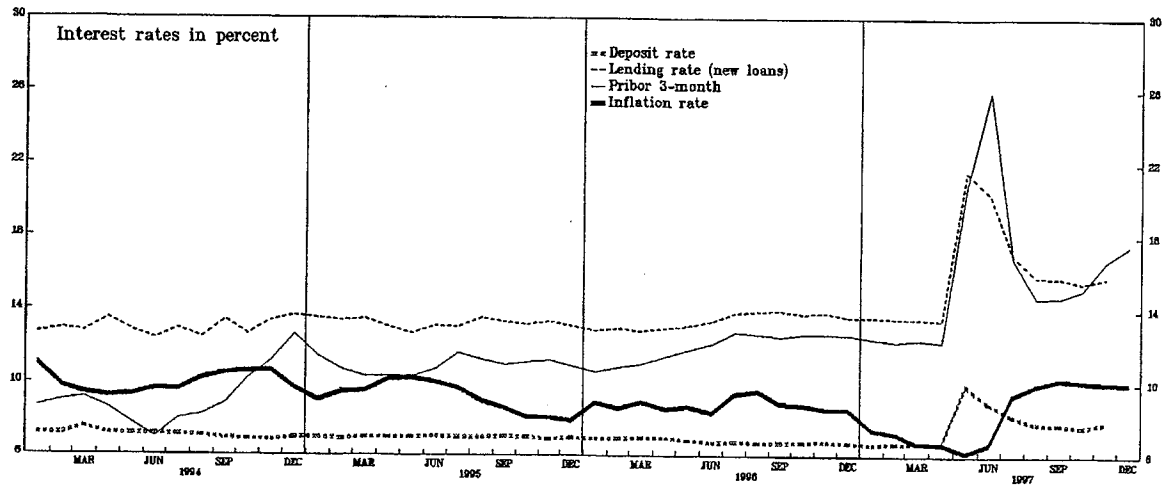
Figure 18
CZECH REPUBLIC
CZECH NATIONAL BANK CREDIT FACILITIES
(In Billions of Koruny)

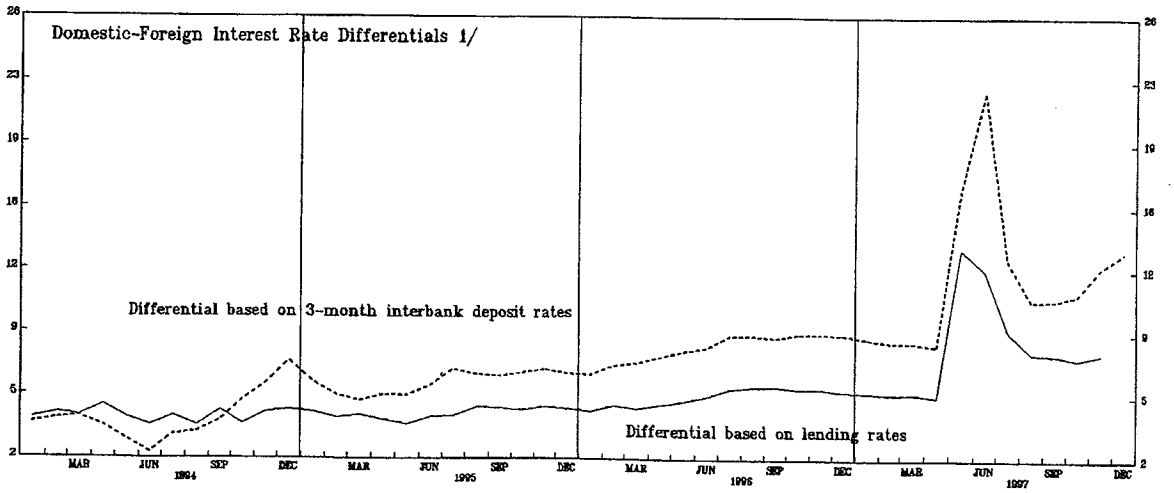


Source: Czech National Bank.

Figure 19
CZECH REPUBLIC
DEVELOPMENTS IN INTEREST RATES (1993-97)



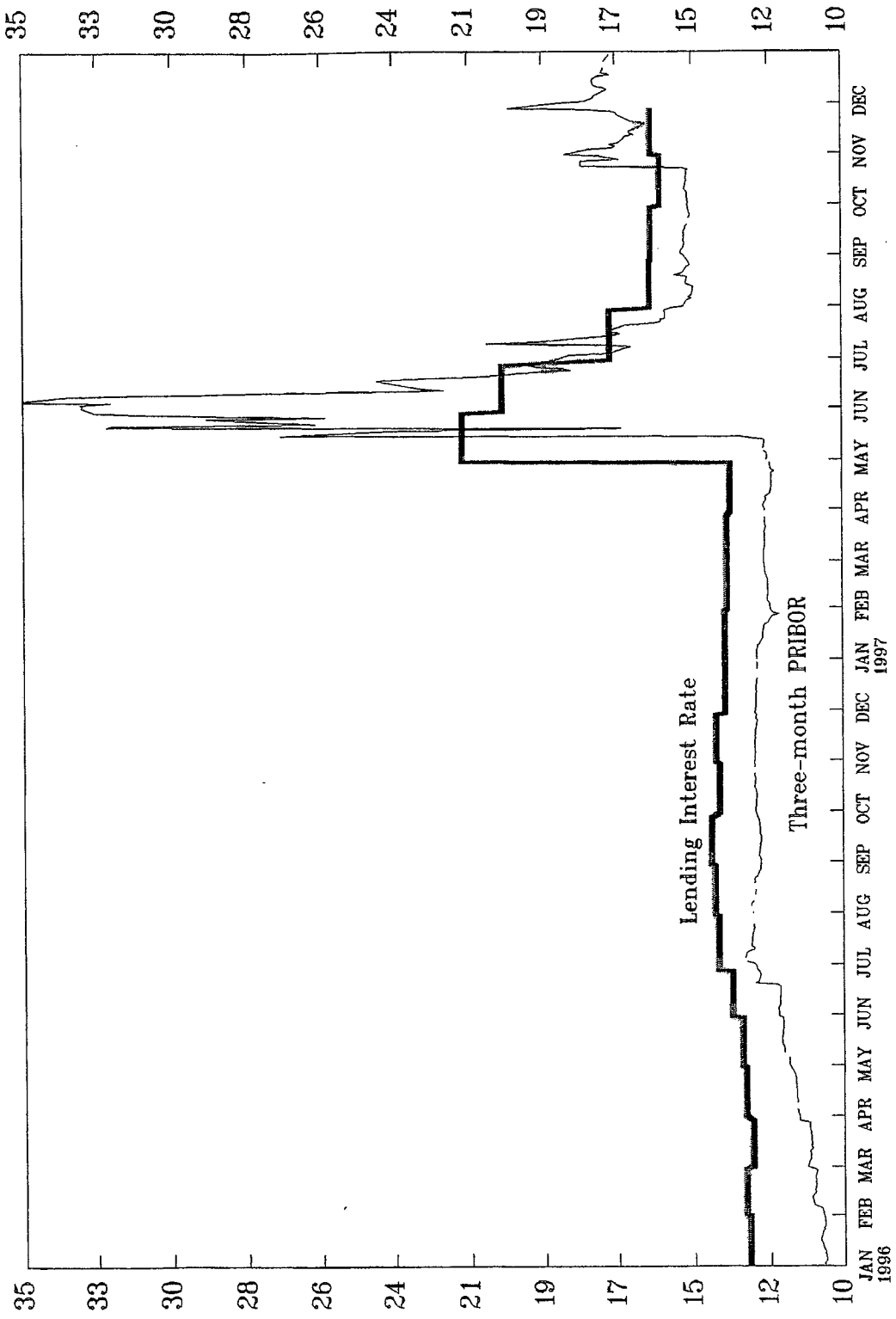




Sources: Czech National Bank; and staff calculations.

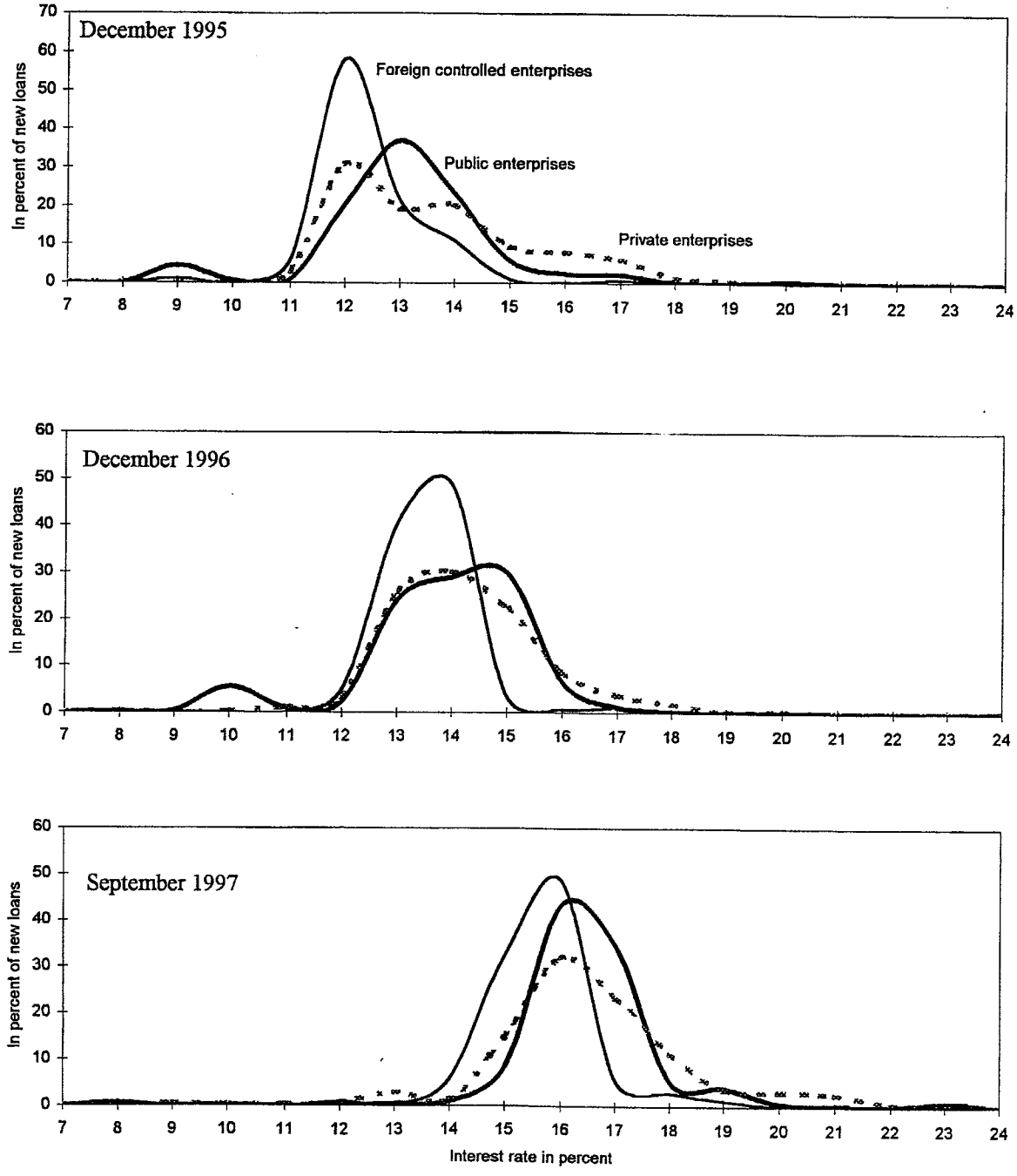
1/ The foreign interest rate is a weighted average of corresponding interest rates in Deutsche Mark and U.S. Dollar instruments, the weights being equal to those in the currency basket.

FIGURE 20
CZECH REPUBLIC
AVERAGE INTEREST RATE OF NEW CREDITS AND PRIBOR
(Annual rates, in percent)



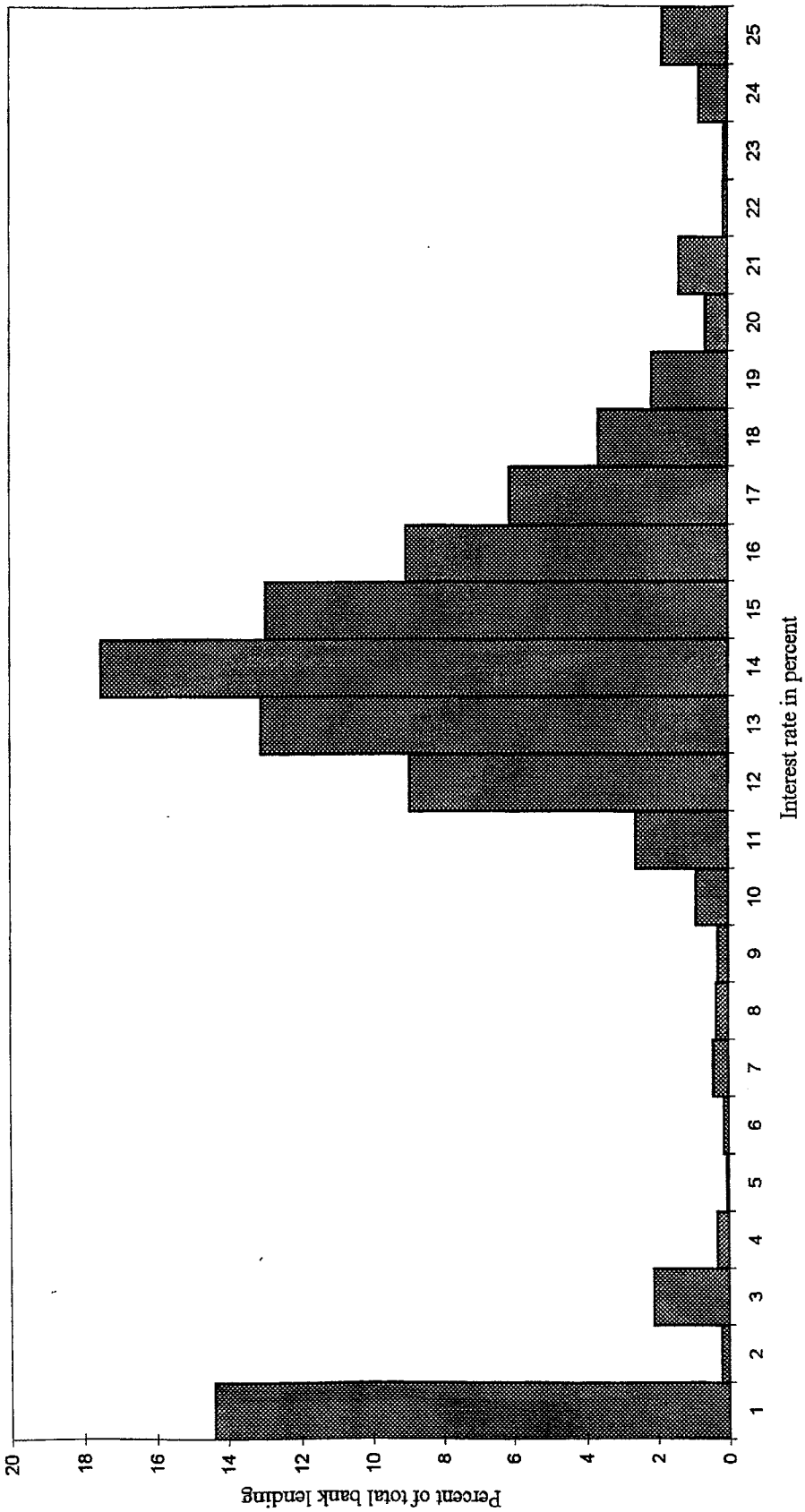
Sources: Czech National Bank.

Figure 21
CZECH REPUBLIC
DISTRIBUTION OF NEW LOANS BY INTEREST RATE



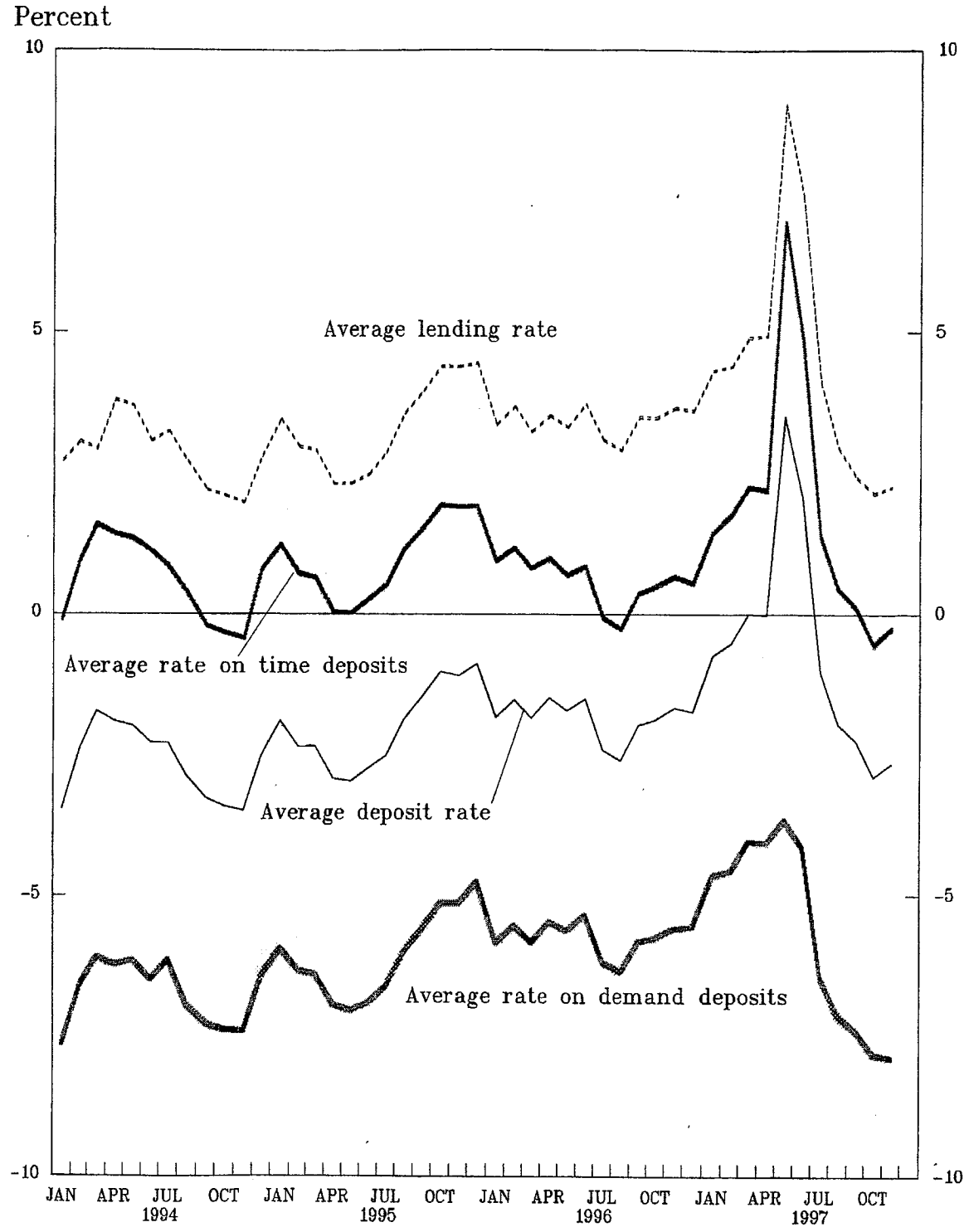
Sources: Czech National Bank; and staff calculations.

Figure 22. CZECH REPUBLIC
INTEREST RATE DISTRIBUTION OF TOTAL BANK LENDING
(December 1996)



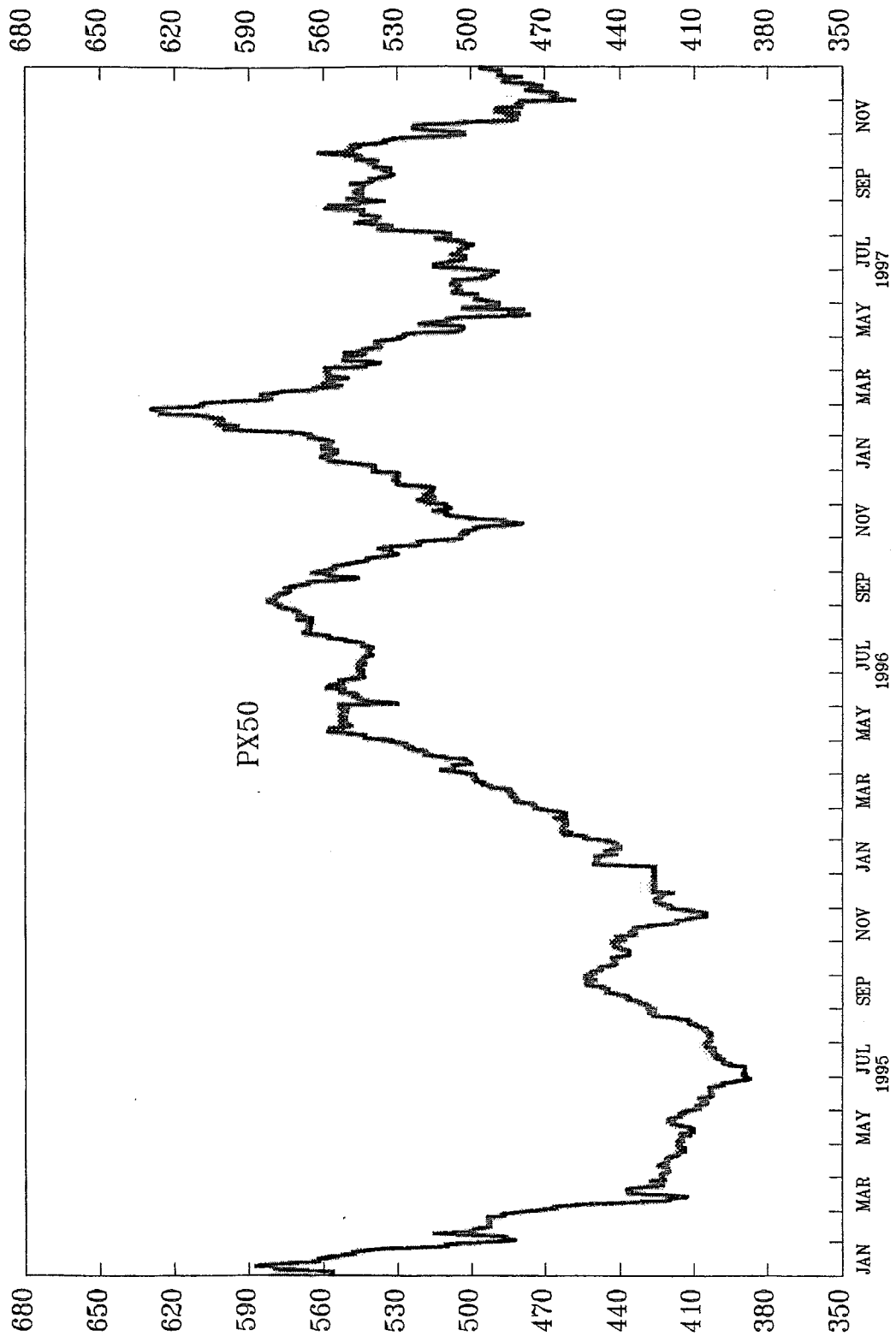
Source: CNB.

Figure 23
CZECH REPUBLIC
INFLATION ADJUSTED INTEREST RATES 1/
(Annual Rates in Percent)



Sources: Czech National Bank; and staff calculations.
1/ Adjusted by the twelve-month CPI growth rate.

FIGURE 24
CZECH REPUBLIC
EQUITY PRICE INDEX (PX50)



Sources: Czech National Bank, and Bloomberg news services.

V. Banking Sector Issues[55]

97. The Czech banking system, which is large in relation to the size of the economy, continues to be burdened by poor loan quality. It has, nevertheless, improved considerably since the beginning of the transition in 1990, introducing new information technologies and expanding services. Bank lending amounted to ¾ of GDP in 1997, exceeding the combined market value of stocks (31 percent of GDP), bonds (9 percent of GDP) and outstanding enterprise borrowing from abroad (20 percent of GDP). The role of banks is even more pervasive if one takes into account their partnerships with enterprises, both directly (through lending and equity holdings) and indirectly (through investment funds under their control).[56]

98. The banking system is dominated by the **four largest banks** (Komercni, Ceska Sporitelna, IPB, and CSOB) which have a combined market share of 63 percent in total assets, rank among the six largest banks in Central and Eastern Europe, and enjoy investment grade ratings (Table 11). All four banks were state controlled as of end-1997; Komercni is the largest in terms of lending, and Ceska Sporitelna (Czech Savings Bank) is the second largest and the prime institution in terms of mobilizing household deposits. Subsidiaries and branches of **foreign banks** account for 19 percent of total assets; they have been catalytic in improving the scope and quality of the banking services and promoting financial innovation; and by rapidly increasing their market share, especially among prime (creditworthy) clients, they have been exerting pressure on domestic banks to improve their efficiency. **Small and medium-sized domestic banks** have a market share of 10 percent and have been involved mainly with the new private enterprises. The three **specialized banks** (Consolidation Bank, Export Bank, and Czech and Moravian Guarantee and Development Bank) and the building societies have limited deposit-taking activities.

99. Poor loan quality is the main problem affecting the net worth and profitability of banks. However, banks appear to have limited exposure to foreign exchange, interest rate, and liquidity risks, and have weathered relatively well the effects of the koruna depreciation and the high interest rates in 1997. The poor loan quality problem is most acute in the smaller domestic banks, and the CNB has accelerated their restructuring to prevent contagion to other banks. Privatization of the large, state-controlled banks, which had stalled until end-1997, has recently gained momentum in preparation for the country's membership of the EU. In addition, steps were taken to strengthen the legal and regulatory framework for banks and the

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[55]Prepared by Anastassios Gagales and Thomas Laursen.

[56]Three factors have contributed to the dominance of banks in the financial system: the legacy from central planning under which banks acted as enterprises' accountants while enterprises lacked financial independence; the under-development of capital markets; and the high risks in the early stages of transition to a market economy, which made it difficult for enterprises to raise funds directly in capital markets.

capital market as well as to improve the transparency of the financial system. These steps included the limitation of banks relations with enterprises and investment funds and the establishment of a Securities Commission. These reforms constituted the key structural element of the policy package announced in April 1997.

100. This chapter is organized in three sections. The first examines the financial position of banks, their exposure to risks, provisioning, bank profitability, and the determinants of the spread between lending and deposit interest rates; the second section reviews the legal and regulatory framework for banks and other financial institutions; and the last section examines progress toward restructuring and privatizing banks.

A. Financial Position of Banks and their Vulnerability to Risks

Quality of the Loan Portfolios of Banks

101. The ex post exposure of banks to credit risk is captured by the share of classified credits in their loan portfolios.[57] Despite a 3 percentage point decline in the past two years, the share of classified loans remains high, 29 percent in June 1997.[58] Classified credits vary

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[57]Classified loans include watch, substandard, doubtful, and loss loans. The classification takes into account the delay in servicing, the debtor's financial situation, and his previous payments record. For each category banks are required to build up provisions and reserves according to notional risk coefficients and may earmark part of their pre-tax income for this purpose. The annual rates of tax deductible allowances have been set so as to enable banks to reach the required level of provisions in five years. Annual additions to provisions and general reserves may not exceed 3 percent of total credits.

[58]This figure excludes the Consolidation Bank (KOB); including it would have raised the share of classified credits to 33.5 percent (Table A28, SM/98/30, Sup. 1 (1/30/98). Notwithstanding a universal banking license, the KOB is a wholly state-owned bank established mainly for managing impaired loans taken over from large banks in 1991–92; it has also been actively involved in enterprise restructuring in its capacity as a major shareholder in a number of enterprises or on the basis of government resolutions. Classified credits exceeded 80 percent of its loan portfolio at end-1996, mostly loans taken over from the large banks in 1991–92 (by end-1996, about 20 percent of these loans had been recovered). Eventual loan losses would be covered by the state and the bank's reserves were already strengthened in 1995 with a CZK 15 billion transfer by the National Property Fund in the form of a long-term nontradable bond. The authorities are considering converting KOB into a credit institution and merging it with Ceska Financni, a subsidiary of CNB performing a similar function in the restructuring of small banks, and Ceska Incasni, a state agency that took over nonperforming credits of CSOB to developing countries stemming from the pre-

(continued...)

considerably across banks and across industries: They stood at 33 percent in the three largest banks (which have generally been reluctant to call in loans and seize collateral), about 45 percent in small banks and banks under conservatorship (reflecting risky lending practices at the early stages of transition),[59] but only 4 percent in foreign banks and branches of foreign banks (Table 11). The considerable difference in the incidence of classified credits across sectors (Figure 25) suggests that larger financial institutions, which have a greater capacity to diversify their portfolios, should have better chances of weathering the vagaries of transition.

102. Loss-loans account for almost ⅔ of classified credits. They are dominant in all maturities and types of loans but less so in foreign-controlled enterprises (Figures 26 and 27). The large share of classified credits exerts pressure on bank profitability by reducing income earning assets and raising the need for provisions; and also accounts for the fragility of several small banks. In aggregate, however, banks are reported to be adequately provisioned; moreover, the CNB has been actively involved in restructuring smaller banks and is encouraging banks to further strengthen their reserves by minimizing dividend payments. The main factors behind the large share of classified credits and its slow decline are:

- Moderate inflation, which did not permit Czech banks to "inflate away" these loans through rapid credit expansion.

- The reluctance of the authorities, out of moral hazard considerations, to undertake an extensive cleaning up of the banks' portfolios from loans extended since the transition to a market economy.[60]

- Unsound lending practices of banks, namely, emphasis on collateral rather than on financial prospects, and a tendency to continue financing loss-making enterprises rather than catalyzing enterprise restructuring.

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[58](...continued)
transition era.

[59]A major difference between these two groups of banks is that the large banks lent primarily to state-controlled enterprises which have had a relatively low bankruptcy rate, but the clientele of smaller banks was mostly newly created enterprises, which subsequently experienced a high failure rate.

[60]Hungarian and Polish banks have a far smaller share of classified credits, but benefited from cleaning-up operations in 1993, which removed impaired loans of about 15 percent of their loan portfolios. Prior to these operations, the share of classified credits in these countries was similar to the current one in the Czech Republic. However, cross-country comparisons should be viewed with some caution, given differences in criteria and enforcement rules.

- Application of the *association principle*, whereby *all* loans to an entity are classified according to the worst claim that a bank has on it.

- Accounting and tax regulations that restrict the writing-off of loss loans against provisions.

- Low rate of seizing collateral, owing to a legal system that favors debtors and requires lengthy court procedures;[61] reluctance on the part of banks to foreclose delinquent loans out of concerns about glutting the real estate market (this would reduce the value of their collateral and necessitate additional provisions);[62] and, to some extent, social policy considerations.

103. The current stock of classified credits reflects the inherited stock of classified credits net of write-offs, plus accrued interest and the incidence of new classified credits. This is captured by the accounting identity:

$$B_t = B_{t-1} - W_t + A_t + N_t,$$

where *B, W, A,* and *N* denote, respectively, outstanding classified credits, write-offs, accrued interest on classified credits, and new classified credits. Dividing both sides of the identity by current period outstanding credit and rearranging terms gives:

$$b_t - b_{t-1} = -[g/(1+g)]b_{t-1} - w_t + a_t + n_t, \quad (1)$$

where lower case letters denote ratios to end-of-period bank credit and *g* stands for the growth rate of nominal bank credit from *t-1* to *t*. Equation (1) decomposes the change in classified credits, $b_t - b_{t-1}$, into four components: The *first* term on the right hand side of the equation, $-[g/(1+g)]b_{t-1}$, measures the extent to which the share of classified loans can be "inflated" away by new loans; if classified credits were 30 percent of outstanding credits (b_{t-1}=0.3), and total credits increased by, say, 10 percent, then the share of classified credits would be reduced by roughly 3 percentage points.[63] The *second* term measures the impact of write-offs and cleaning of bank portfolios (e.g., transfers to the budget or "bank hospitals"

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[61]For example, banks require the debtor's approval to sell property, and if he refuses, a lengthy court process is needed for getting permission to sell the property.

[62]For similar reasons they have been hesitant to securitize loans and sell them in the secondary market.

[63]To capture the full effect of the new credits, namely, the generation of income that can be used to write off loss-loans, equation (1) needs to be supplemented with a profit equation (as in Annex V) and an estimate of the incidence of classified credits among new credits.

such as the Consolidation Bank and Ceska Financni). The *third* term measures the contribution of interest capitalization on classified loans, which should be distinguished from the accumulation of new classified loans that is captured by the *last* term of equation (1).

104. Credit growth, write-offs, and portfolio cleaning-up operations in troubled small banks contributed 5.9 percentage points to the decline in the share of classified credits in 1996 and 5.5 percentage points in the first nine months of 1997 (Table 13). However, their effect was largely offset by the combined effect of interest accrual on classified credits and, not least, the incidence of new classified credits, especially in 1997. The 1997 increase relates to the slowdown of economic activity and the extensive floods; the more accurate recording of the problem at smaller banks undergoing restructuring; and the weak profit performance of banks in 1997, which slowed down write-offs.

Other Risks

105. The banking system has some exposure to **interest rate risk**, owing to the reliance of several banks (including major ones) on very short-term interbank borrowing. On the other hand, exposure to **market and exchange rate risks** has been limited, owing to the small share of marketable securities in banks' portfolios and prudential limits on open foreign exchange positions. Although banks do not seem to have lent significant amounts for real estate purposes, recent declines in real estate values have affected the financial position of banks via their impact on the value of collateral. The vulnerability of banks to interest and market rate risk became evident during the May 1997 crisis when the discount window of the CNB was closed, three-month interest rates reached 30 percent (entailing a redistribution of profits toward Sporitelna, the prime lender in the interbank market), and bond prices tumbled.

- The exposure to **interest rate risk** relates to the maturity mismatch between assets and liabilities. In particular, the reliance of several banks on interbank borrowing exacerbates the maturity mismatch, owing to the typical maturity transformation undertaken by banks. Although Czech banks have kept their medium- and long-term credits at 25 percent of short-term deposits, their liabilities with a residual maturity of up to one week exceeded 30 percent of total liabilities in 1997 and were double the corresponding assets (Figure 28). As part of their risk management, banks try to contain their exposure to interest rate risk by having about half of their domestic lending at adjustable interest rates.

Table 11. Czech Republic: Balance Sheets of Commercial Banks,1996 1/

	Large banks 2/	Savings Bank	Small banks	Foreign banks 3/	Special banks 4/	Consoli-dation bank 5/	Banks under conserva-torship 6/	Total excluding KOB	Total
				(End-of-year balances in billion koruny)					
Assets:	877	377	105	378	62	130	80	1,879	2,009
Liquid assets	166	57	11	52	6	4	8	299	303
Gross credits	513	163	54	145	7	79	52	935	1,013
Standard	342	122	28	139	6	14	28	665	679
Classified	170	41	26	6	1	64	24	269	334
Securities	101	39	10	11	11	19	5	178	197
Other assets	97	118	29	170	38	29	15	467	496
Claims on banks	...	77	...	...	...	7	...	...	...
Liabilities:	877	377	105	378	62	130	80	1,879	2,009
Deposits of non-banks	463	300	62	90	38	9	45	999	1,008
Deposits of banks (incl. foreign)	153	26	11	224	9	26	16	439	465
Sources from CNB	29		3	0	0	37	3	35	71
Equity	20	8	11	11	6	6	5	61	67
Reserves and capital funds	58	13	3	5	2	38	3	85	123
Other liabilities	154	30	14	48	6	15	8	260	275
Market shares:				*(In percent)*					
Deposits of non-banks	46.0	29.8	6.2	8.9	3.8	0.8	4.5	...	100.0
Credits to non-banks	50.6	16.1	5.3	14.3	0.7	7.8	5.2	...	100.0
Total assets	43.7	18.8	5.2	18.8	3.1	6.5	4.0	...	100.0
Ratios to total credits:									
Classified credits	33.2	25.3	48.6	4.2	20.4	81.8	45.5	28.8	32.9
Deposits of non-banks	90.3	184.6	115.0	62.0	522.1	10.8	86.5	106.9	99.5
Deposits of banks (incl. foreign)	29.9	16.0	21.0	154.3	124.4	32.6	29.7	47.0	45.9
Sources from CNB	5.6	-	5.4	0.3	-	46.7	5.1	3.7	7.0
Capital and reserves	15.2	12.7	25.7	11.3	116.0	56.5	16.1	15.6	18.8
Liquid assets/deposits	35.7	18.9	17.4	57.8	16.3	47.1	18.1	30.0	30.1
(Liquid assets + securities)/deposits	57.6	31.9	34.0	70.2	45.3	265.9	29.5	47.8	49.6
Own funds / classified credits	45.6	50.4	53.0	266.5	568.5	69.0	35.4	54.1	57.0
Memorandum items									
Ratios to total assets:									
Own funds	8.9	5.5	13.3	4.3	13.6	34.2	10.5	7.8	9.5
Liquid assets	18.9	15.0	10.4	13.7	10.0	3.1	10.2	15.9	15.1
Securities	11.5	10.4	9.9	2.9	17.8	14.3	6.4	9.5	9.8
Liquid assets + securities	30.4	25.5	20.3	16.7	27.8	17.4	16.6	25.4	24.9
Credits	58.5	43.2	51.8	38.3	11.8	60.6	65.2	49.7	50.4
Standard credits	39.0	32.3	26.6	36.7	9.4	11.0	35.5	35.4	33.8
Classified credits	19.4	10.9	25.2	1.6	2.4	49.6	29.7	14.3	16.6
Other assets	11.1	31.4	27.9	45.0	60.4	22.0	18.2	24.9	24.7
Claims on banks	...	20.4	...	...	...	5.3	...	...	...
Deposits of banks (incl. foreign)	17.5	6.9	10.9	59.2	14.6	19.7	19.3	23.4	23.2

Sources: CNB, annual reports of banks and staff calculations.
1/ Excluding banks whose licence has been withdrawn.
2/ Komercni, IPB, CSOB.
3/ Including branches of foreign banks.
4/ Export Bank, Cm. Zaruzni Banka, Cm. Hypotecni Banka, building societies.
5/ General reserves include a transfer of CZK 31 billion from the NPF for prospective loan losses.
6/ Agrobanka, COOP Banka, Podnikatelska Banka, and Velkomoravska Banka.

Table 12. Czech Republic: Commercial Bank Accounts, 1994-96 1/

	1994	1995	1996	1994	1995	1996
	(End-of-period balances in billion koruny)			(In percent of total assets)		
Assets:	**1,480.8**	**1,852.2**	**2,033.4**	**100.0**	**100.0**	**100.0**
Cash	22.0	24.6	28.2	1.5	1.3	1.4
Deposits and credits with CNB	68.9	164.3	142.1	4.7	8.9	7.0
of which: minimum reserve requirement	*51.5*	*75.9*	*113.7*	*3.5*	*4.1*	*5.6*
Deposits and credits with banks	300.7	316.4	391.3	20.3	17.1	19.2
T-bills	27.1	34.0	49.9	1.8	1.8	2.5
CNB bills	46.7	121.9	62.8	3.2	6.6	3.1
Granted credits	786.2	850.2	938.9	53.1	45.9	46.2
of which in foreign currency	...	*97.0*	*129.0*	...	*5.2*	*6.3*
Tradable securities	91.7	148.9	176.1	6.2	8.0	8.7
of which:						
bonds	*73.8*	*122.8*	*132.8*	*5.0*	*6.6*	*6.5*
shares	*16.0*	*23.9*	*38.0*	*1.1*	*1.3*	*1.9*
Participations (investments)	16.7	22.7	22.4	1.1	1.2	1.1
Tangible and intangible assets	47.8	58.1	65.5	3.2	3.1	3.2
Other assets	73.1	111.0	156.3	4.9	6.0	7.7
Liabilities:	**1,480.8**	**1,852.2**	**2,033.4**	**100.0**	**100.0**	**100.0**
Resources from CNB	77.2	74.4	79.9	5.2	4.0	3.9
Deposits and credits from banks	277.5	386.1	469.9	18.7	20.8	23.1
of which:	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
current accounts	*11.9*	*15.0*	*16.8*	*0.8*	*0.8*	*0.8*
time deposits	*165.4*	*244.3*	*333.5*	*11.2*	*13.2*	*16.4*
credits received	*100.2*	*126.8*	*119.6*	*6.8*	*6.8*	*5.9*
Deposits received	820.9	941.0	1,010.7	55.4	50.8	49.7
of which in foreign currency	...	*60.0*	*71.0*	...	*3.2*	*3.5*
Bond issues	27.1	48.9	62.9	1.8	2.6	3.1
Provisions	18.8	77.0	91.7	1.3	4.2	4.5
Reserves	75.7	43.1	39.0	5.1	2.3	1.9
Reserve funds	41.1	57.5	64.0	2.8	3.1	3.1
Capital funds	13.7	15.3	20.1	0.9	0.8	1.0
Initial capital	55.7	63.6	69.2	3.8	3.4	3.4
Retained profit	0.9	1.9	1.9	0.1	0.1	0.1
Current year profit	7.2	12.1	18.2	0.5	0.7	0.9
Other liabilities	65.0	131.6	105.9	4.4	7.1	5.2
Income Statement:						
Net interest income	46.5	44.1	41.5	3.1	2.4	2.0
Interest revenue	*123.8*	*129.5*	*146.1*	*8.4*	*7.0*	*7.2*
Interest expenditure	*77.3*	*85.4*	*104.6*	*5.2*	*4.6*	*5.1*
Net income from fees and commissions	8.5	9.1	11.4	0.6	0.5	0.6
Revenue from fees and commissions	*9.3*	*10.1*	*12.9*	*0.6*	*0.5*	*0.6*
Expenditure on fees and commissions	*0.8*	*1.1*	*1.5*	*0.1*	*0.1*	*0.1*
Revenue from securities	4.3	6.2	11.3	0.3	0.3	0.6
Revenue from foreign exchange operations	5.4	7.2	6.7	0.4	0.4	0.3
Other operating revenues	0.4	1.5	1.4	0.0	0.1	0.1
Gross income from banking activity	**65.0**	**68.0**	**72.1**	**4.4**	**3.7**	**3.5**
General operating costs	25.8	32.8	39.7	1.7	1.8	2.0
Revenue and provision creation (net)	26.7	25.6	7.3	1.8	1.4	0.4
Other operating costs	3.4	7.0	19.6	0.2	0.4	1.0
Gross operating profit minus provisions	**9.1**	**2.7**	**5.6**	**0.6**	**0.1**	**0.3**
Extraordinary revenue	0.4	0.3	-0.1	0.0	0.0	0.0
Taxes	3.4	1.7	0.4	0.2	0.1	0.0
Net profit	**6.1**	**1.3**	**5.1**	**0.4**	**0.1**	**0.2**

Source: Czech National Bank

1/ Includes bank branches abroad. Banks under conservatorship are excluded from the income statement.

- Exposure to **market risk** is limited, as securities (government securities and CNB bills) did not exceed 10 percent of banks' portfolios (Table 12). The high interest rates after the May depreciation reduced bond prices, creating valuation losses for banks and worsening bank profitability.[64]

- Despite increased reliance on foreign borrowing for the financing of domestic lending activities, **foreign exchange exposure** of banks is limited, as banks broadly cover their net foreign currency liabilities to nonresidents with net foreign currency claims on residents. Moreover, off-balance-sheet positions (which are monitored on a daily basis by the CNB) are reported to be small, owing to prudential regulations that impose limits on the sum of on- and off-balance-sheet positions.[65] Banks' external positions are fairly liquid, as their short-term foreign assets are almost double their short-term foreign liabilities.

Table 13. Czech Republic: Proximate Determinants of the Change in Classified Credits, 1995–97

(In percent of outstanding credit at end of previous year) 1/

	1995	1996	1997
Outstanding classified credits	32.2	30.0	29.1
Change in classified credits	-2.0	-2.1	-1.0
Of which due to:			
Credit growth	-4.7	-3.7	-2.5
Write-offs	-1.1	-2.2	-0.4
Cleaning up of small banks` portfolios 2/	--	--	-2.6
Accrual of interest	0.5	0.4	0.3
New classified credits (residual)	3.3	3.4	4.2

Sources: Czech National Bank; and staff estimates based on equation (1).

1/Excluding the Consolidation Bank.
2/Based on the assumption that classified credits taken over by the CNB and Ceska Financni were no longer considered as classified.

[64]These were valuation adjustments. They translated to actual losses only to the extent that bonds were sold prior to maturity.

[65]See SM/96/286.

Provisions and Capital Adequacy

106. The current regulatory framework requires provisions against credit risk only, while all other risks are to be covered by general reserves (Table 14). According to external auditors' reports, major banks have provisioned and/or collateralized their classified loans: risk-weighted classified loans, essentially a proxy for expected losses from lending operations,[66] stood at 20 percent of total credit in September 1997. Against this, banks have accumulated loan loss **provisions** of 10½ percent of total credits while the remaining 9½ percent is **collateralized** with (state/bank) guarantees, traded securities, or real estate. There is concern, however, that auditors' reports may not fully reflect the incidence of classified credits and the poor quality of some of the collateral. Indeed, the reluctance of banks to seize collateral suggests that the insurance value of collateral may be overstated. Moreover, the insurance value of collateral deteriorated in 1997 in line with the deterioration of commercial and industrial real estate values.[67] Credit rating agencies have expressed concern about the adequacy of provisions but have not downgraded major banks (besides IBCA's downgrading of Komercni's long-term rating from A- to BBB+ in November 1997)[68] on the presumption that, if they experience difficulties, banks would receive state support.[69] Because of moral hazard considerations, the authorities are not contemplating any cleaning up of portfolios of large banks beyond the one in 1991–92 and the restructuring of small banks in 1996–97.

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[66]The risk coefficients should capture, in principle, the likelihood of default (credit risk) and the financial consequences of the default (default risk), namely, the extent of default, value of collateral, cost of collecting collateral, and legal costs.

[67]After reassessing the market value of collateral on its classified credits (20 percent of outstanding credits), Komercni Banka announced in January 1998 that it would reduce the value of its collateral and raise correspondingly the provisions against loan losses by CZK 10.5 billion. The buildup of provisions was to be financed from profits and from general reserves. Nonetheless, the bank expected to meet the capital adequacy requirement.

[68]In its press release IBCA noted that, despite write-offs, the share of classified loans in Komercni had increased to 34 percent (loss-loans: 21 percent) and cautioned that the down-turn of economic activity and extensive floods in 1997 could lead to a further deterioration of asset quality. Komercni's short-term rating was affirmed at A-; its overall rating remained the highest among Central and East European banks.

[69]Standard & Poor's changed its outlook concerning the three largest banks (Komercni, Ceska Sporitelna, and CSOB) from stable to *negative* and cautioned that their grades would be reduced if further if their sell-off became protracted.

107. The capital adequacy ratio (capital over risk-weighted assets) of the banking sector was 10.3 percent at end-1996.[70] It has declined by 2 percentage points since end-1995 as a result of the transfer of general reserves to loan loss provisions and a change in the methodology, whereby since 1996 participations in nonbanks have been subtracted from own funds. In 18 of the banks the capital adequacy ratio exceeded 15 percent, and in 11 small banks the ratio was below the required 8 percent. Of the latter, 5 were under conservatorship, 3 were merging with other stronger banks, while the rest were participating in the restructuring program for small banks; excluding these banks, the average capital adequacy ratio was 12.4 percent.

Table 14. Czech Republic: General Reserves and Provisions on Loans, 1996–97

Loan classification	Delay in servicing	Required total provisions	Annual tax-deductible provisions/ reserves 1/	Share in total loans (June 97)
			(In percent)	
Standard	Up to 30 days	0	1	67
Watch	31 to 90 days	5	1	5
Substandard	91 to 180 days	20	5	3
Doubtful	181 to 360 days	50	10	3
Loss	More than 360 days	100	20	22
Guarantees			2	
Claims on entities declared bankrupt by a court			100	

1/ Total annual tax deductible provisions may not exceed 3 percent of the average level of credits during the tax period.

108. The minimum capital adequacy requirement has induced banks to improve both their soundness and liquidity by increasing in their portfolio the share of items that have less than 100 percent risk weight and especially government bonds and CNB bills. However, the existing capital adequacy regulation does not address market, interest rate, exchange rate, and trading risk, which are becoming increasingly important with the internationalization of the Czech economy and the development of new financial instruments; moreover, it does not prevent banks that want to hold risky loan portfolios from making the riskiest loans within each risk-weighting class. As a cushion against these risks, the BIS recommended in 1997 that the capital adequacy ratio in emerging and developing countries be held above

[70]By definition, the capital adequacy ratio exceeds the ratio of own funds to (unweighted) total bank assets reported in Table 11.

12 percent. Ideally, banks need a comprehensive approach that would manage the riskiness of the entire portfolio of banks, including off-balance-sheet items, and allow for interaction among the various types of risk.

Bank Profitability

109. Core profitability (i.e., pre-provision profits) has been weakening since 1994 as a result of increasing operating costs and shrinking net interest income.[71] Profitability is reported to have weakened further in 1997, as (i) several major banks that relied on the interbank market for funds were able to pass on to borrowers only part of the higher interest rates in the aftermath of the May crisis;[72] (ii) bond prices fell, owing to the rise in interest rates; and (iii) interest revenue declined as loan quality deteriorated with the slowdown of economic activity and damage from the floods. The decline in core profitability resulted in a smaller buildup of reserves and provisions.

110. The main source of revenue has been **net interest income**, which declined to 2 percent of total assets, owing to a shrinking differential between lending and deposit interest rates (Table 15, Figure 29). **Noninterest income** moderated the decline in gross income from general banking activity. The rapid increase of **general operating costs** (excluding provisions), which reached the level in industrial countries in relation to total assets,[73] reflects the rapid expansion of the branch network and employment as well as high wage increases (partly owing to shortages of qualified personnel). In response to higher costs, banks started in 1996 to consolidate their branch networks and eliminate redundancies. The process is expected to intensify further with the privatization of large banks. Foreign partners are likely to introduce more income-generating services (to reduce dependence on interest rates) such as credit cards, mortgages, and consumer loans, and improve credit-analysis skills, thereby reducing the incidence of classified credits in new credits.

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[71]The accounting practice of considering as income interest accruals on loss loans does not affect overall profitability because banks are required to increase their provisions by the amount of interest accruals. Besides, the interest rate in the majority of loss-loans has been reduced to very low rates.

[72]However, the sector as a whole managed to raise temporarily net interest income, as evidenced by the widening of the lending deposit spread by ½ percent despite the reduction in the required reserves ratio. The Savings bank, the prime lender in the interbank market, was the main beneficiary.

[73]IMF, *International Capital Markets*, November 1997, page 147.

Table 15. Czech Republic: Bank Profitability, 1994–96

(In percent of total assets)

	1994	1995	1996
Net interest income	3.1	2.4	2.0
Interest revenue	8.4	7.0	7.2
Interest expenditure	5.2	4.6	5.1
Net non-interest income	1.2	1.3	1.5
Gross income from banking activity	**4.4**	**3.7**	**3.5**
General operating costs	2.0	2.1	2.9
Core profitability	**2.4**	**1.5**	**0.6**
Provisions	1.8	1.4	0.4
Taxes	0.2	0.1	0.0
After tax profit	**0.4**	**0.1**	**0.3**

Source: Czech National Bank.

111. Differences in loan quality account for differences in core profitability across banks. Large banks, with a share of classified credits above average (Table 11), keep the spread between lending and deposit interest rates wide so as to accommodate the buildup of provisions. This boosts the profitability of banks with a below-average share of classified loans, especially foreign-controlled banks, which are able to expand their market share and put downward pressure on the spread; in turn, this exerts pressure to reduce costs but also makes it more difficult for bad-loan-ridden banks to beef up their provisions.

112. Bank profitability, the share of classified credits, and the spread between lending and deposit interest rates are intimately related: classified credits reduce profitability (via provisioning) and raise the interest rate spread; meanwhile, higher profitability (by enabling better provisioning and faster write-offs) reduces the share of classified credits and allows banks to operate at a lower interest rate spread. The approach of the CNB to the bad loan problem has been to press banks with positive net worth and core profitability (essentially the large banks and several medium-sized banks) to use their profits to write off classified credits; and restructure banks with small or negative net worth (essentially several smaller banks).

Intermediation Spread

113. The intermediation spread, i.e., the difference between the average lending and average deposit interest rate, declined from 6 percentage points in 1994 to 5.4 percentage points in 1997 and is about the same as the spreads in Hungary and Poland, and lower than those in several EU countries (Greece: 7 percent; Ireland: 5.7 percent), but it exceeds the EU average. Intrayear gyrations have been considerable, owing to changes in the required reserves ratio and temporary increases in the interbank rate that banks passed on to borrowers (Figure 30).

114. The declining intermediation spread is presumably the result of intensifying competition in the industry (it occurred despite increasing administrative costs) and cross-subsidization of lending/deposit taking from other activities (net fee-income increased steadily). On the other hand, the contribution of required reserves rose to ¾ of 1 percent; and the cost of deposit insurance added ½ percent to the spread.

Table 16. Czech Republic: Proximate Determinants of the Intermediation Spread, 1994–97

	1994	1995	1996	1997
	(Average lending minus average deposit rate, in percent)			
Intermediation spread	6.0	5.8	5.7	5.4
	(In percent of bank lending)			
Administrative costs	3.7	4.7	6.3	...
Provisions and other operating costs	3.4	3.0	0.8	...
Cost of required reserves	0.4	0.6	0.7	0.8
Cost of deposit insurance	--	0.5	0.5	0.5
Net fee income	-2.3	-3.2	-3.1	...
Pre-tax profits	0.8	0.2	0.5	...

Sources: Staff estimates based on data provided by the Czech National Bank.

115. The decomposition of the intermediation spread is subject to several caveats:

- Given the high incidence of impaired loans, credit risk should be an important component of the intermediation spread. However, provisions in the income statement are likely to *understate* credit risk when banks are slow in acknowledging problems in their loan portfolios.

- The relevance of the spread between deposit and lending interest rates for analyzing bank profitability declines with the expansion of fee-based services, nonlending activities, and nondeposit liabilities (e.g., certificates of deposit and bank bonds).

- The *average* lending and deposit rates reflect the overall quality of banks' portfolios and encompass past as well as current asset and liability management decisions. They are likely to differ from interest rates on *new* loans and deposits, which are related to *current* market conditions, and guide the behavior of profit-maximizing banks: lending decisions are taken at the margin, whereas overall profitability depends on average interest rates.

- The contribution of required reserves to the intermediation spread in Table 16 was calculated from the average deposit interest rate and the share of deposits in the funding of lending operations. A greater reliance of banks on nondeposit liabilities (which are not subject to reserve requirements) would reduce the contribution of required reserves. On the other hand, when pricing new loans, the contribution of required reserves should be evaluated at the marginal cost of raising funds (approximated by PRIBOR); this would almost double the contribution of required reserves.[74]

B. Legal and Regulatory Framework

Banking Legislation

116. As part of the response to the economic policy and other transformational measures announced in April 1997, the Banking Act of 1992 is being revised in two stages ("small" and "large" amendments). The small amendment was approved by Parliament in January 1998. It was focused on addressing the problems of banks' close relations with nonbanks, especially in the business sphere, and the consequent risks of interest conflicts; related to this, it was to tackle the problem of overlapping of personnel in the statutory bodies of banks and enterprises; and finally, it was to resolve the problem of interconnections between credit and investment decisions. These amendments will retain the existing concept of a universal banking system as implemented in most of Europe and accepted by the regulations of the EU. In addition, the revisions included measures to aid the process of forced administration and liquidation of banks and to secure the exercise of professional care in trading of stocks and securities and avoid past problems of insider trading and asset stripping. More specifically, the amendments included:

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[74]The marginal impact of the required reserves ratio on the spread is given by $\rho . R.(1- \rho)^{-1}$ where ρ and R represent, respectively, the required reserves ratio and the marginal cost of funds.

- The prohibition of banks from acquiring direct or indirect majority control (at least 50 percent of shares) over nonfinancial institutions and limitations on qualified participation (10 percent or more) in these to 15 percent of capital in a single institution and 60 percent in total;

- The prohibition of members of a bank's board and bank employees from participating in the statutory body or inspection board of another legal entity;

- The stipulation of requirements for professional care in trading securities in order to prevent the withdrawal of liquidity and asset stripping (also known as "tunneling"); and the separation within each bank of commercial banking from investment activities to prevent insider trading;

- Authorization for the central bank to decrease the value of a bank's stock, even during a period of forced administration;

- In addition, provisions were included to increase the deposit insurance limit from CZK 100,000 to CZK 300,000 per depositor and to oblige the CNB to compensate clients in Ceska Bank (which was closed in December 1995 and is now in the process of liquidation) in an amount up to CZK 4 million, corresponding to the coverage extended to banks under the subsequent consolidation program.

Banks have been granted six months to comply with the new rules on composition of and participation in statutory boards and professional care in securities trading, while the new rules regarding ownership participation are to be phased in over three years.

117. In the second stage, a more fundamental revision of the Banking Act aimed at restoring general confidence in the banking system was approved by the Cabinet in November 1997 and is currently under consideration in Parliament (large amendment). This revision is inspired by failures and irregularities among smaller banks and investment funds which the authorities have linked to agents acting against the interests of the banking and financial system and the absence of effective controls. The amendment would enhance transparency and also legal safeguards in banking, while harmonizing Czech legislation more closely with EU legislation. More specifically, the proposed amendment includes:

- A strengthening of the central bank's control over shareholders of a bank through the requirements that voting stock be issued only in registered form; that acquisitions of voting rights exceeding 5 percent be approved first by the CNB; that new shareholders satisfy the same "fit and proper" criterion as the founders of the bank; and by making it possible for stockholders to be stripped of their voting rights if they undermine the proper and prudential operation of the bank;

- Abolition of the economic need criterion as a condition for licencing banks;

- Improved accountability of a bank's management and board by requiring that a bank's board of directors be composed of the top management of the bank; that the board of trustees be chosen by a general meeting rather than by the employees of the bank; and that directors share responsibility for claims against themselves or the bank;

- Expanded notification and disclosure requirements through mandatory prior notification to the CNB of, inter alia, amendments to statutes or personnel changes in statutory bodies or bank director positions; and quarterly rather than annual as well more comprehensive reports;

- Enhanced flexibility of the central bank in dealing with problem banks through authorization for an administrator to liquidate a bank; provision for mandatory removal of a banks' license if capital falls below one-third of the required rate; and requirement that courts decide on liquidation of a bank and appointment of receiver within 24 hours from the submission from the CNB;

- An extension of deposit insurance to legal persons, and exclusion from insurance coverage of natural persons related to the bank (management, board members, etc.) and persons convicted for money laundering.

These amendments are proposed to take effect from April 1, 1998. Following the introduction of a money laundering act in July 1996, an amendment to the Criminal Law is also currently being prepared in collaboration with the banking supervision authorities.

Prudential Regulation

118. As described in detail in the 1996 Recent Economic Developments, prudential regulation of banks in the Czech Republic is modeled on international standards as incorporated in EU directives or recommended by the Basle Committee on Banking Supervision. These include rules on minimum capital, capital adequacy, large exposures, liquidity, foreign exchange exposure, investment requirements, required reserves, limits on bank lending and equity participation, and classification and provisioning of credits. These regulations are continuously being amended to harmonize them more closely with international and EU standards, while addressing issues specific to the Czech Republic. However, changes to regulations were relatively minor during 1996–97 and focused on improving the accounting for securities operations and valuation of securities holdings. Specifically, the changes to regulations provided for:

- Further specifications and more detailed accounting procedures with respect to off-balance-sheet items and securities operations to reflect the rapid changes in these areas;

- Stipulation of principles for creating securities portfolios and ownership interests (including separation of investment and trading portfolios), and requirement that provisions be made for individual securities and ownership interests corresponding to any shortfalls of the market price compared with the purchase price (marking to market);

- Revisions to risk weights for the calculation of the capital adequacy ratio (assignment of 50 percent and 100 percent risk weights to claims on banks under conservatorship and liquidation, respectively, compared with 20 percent for standard banks) and to specification and conversion factors for off-balance-sheet items;

- A broadening of the definition of credit exposure to single customers;

- Better monitoring of liquidity through focus on the structure and risk concentration of liabilities, notably deposits;

- Classification of foreign exchange loans which are not fully hedged against exchange rate risk as watch loans (requiring 5 percent provisioning) with effect from January 1998, with a view to encouraging enterprises to hedge their exchange rate exposure.

- Classification of foreign exchange loans as substandard (requiring 5 percent provisioning) with effect from January 1998, with a view to discouraging foreign exchange lending;

- Periodic (quarterly) reassessment of loan portfolio and other assets.

Banks were given a six-month period to create sufficient provisions for marking to market.

119. As discussed in Section A, banks are somewhat exposed to liquidity and interest rate risk, owing to the reliance of several banks on the very short-term interbank market, while their exposure to market and foreign exchange risk is limited due to a relatively small share of marketable securities in the banks' portfolios and prudential limits on open foreign exchange positions. This may be the reason why the development of regulations to control market risk (including that related to off-balance-sheet items such as derivatives) is still in its infancy, but it will reportedly be given increased attention. Likewise, the capital adequacy ratio continues to focus on credit risk with no adjustments for market risk.[75] Further, certain banking practices and tax regulations restrict banks' ability to strengthen their capital position. This includes notably the requirement that interest be accrued on classified and even lost loans for income tax purposes, while there is a limit on tax-deductible provisioning of 3 percent of average credits outstanding during the taxation period. There are also

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[75]In January 1996 the Basle Committee issued guidelines regarding capital adequacy for market risks.

restrictions on bank's ability to write off loss loans from provisions.[76] Improved conditions for foreclosure and for writing off loss loans, as well as a more generous tax treatment of provisioning, is required to help banks strengthen their balance sheets.

Supervision

120. With the banking system under increased pressure and ongoing efforts to rehabilitate problem banks, the Czech National Bank continued to take measures to strengthen its supervisory functions in 1996–97, including an increase in the quantity and quality of staff.[77] With the scarcity of resources, the central bank's supervision has been forced to rely excessively on auditors' reports. While auditors have generally been internationally acknowledged firms, experience from the Czech Republic as well as many other countries has demonstrated that in many instances, these firms have been led or pressured to underestimate the size of bad assets or risks. The CNB has been able to conduct only one on-site inspection in each of the four large, state-controlled banks during the last four years. The improved resources should allow for a much-needed intensification of the inspection process, including greater scrutiny of off-site inspection reports and more frequent on-site inspections.

121. Moreover, the supervision of banks in the Czech Republic is currently not done on a consolidated basis.[78] This is a source of concern, given the universal nature of Czech banks and their close involvement and crossholdings with other financial institutions and the enterprise sector. However, individual banks are not owned by holding companies and generally do not own companies themselves, thus reducing the risk of contagion from related companies or forced manipulation of credit.

Capital market

122. A number of measures were taken in 1997 to restore investors' confidence and increase the attractiveness of Czech capital market:

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[76]These include notably the requirement that court proceedings be initiated against the debtor.

[77]As an indication of the improved quality of supervision, the central bank in its capacity as chairman of the Eastern European Group of Bank Inspectors was invited to participate in the Basle Committee on Banking Supervision's preparation of "Core Principles for Effective Banking Supervision". These were issued in September 1997.

[78]The 1992 EU Directive on Consolidated Supervision requires holding companies of banks or other companies within a banking group to provide information to the supervisory authorities.

- several mismanaged investment firms, including some established and operated by banks, were placed under conservatorship or had their license restricted or suspended;

- more than 1,300 inactive shares were delisted from the Prague Stock Exchange; and investment funds have been asked to channel their transactions through the Stock Exchange;

- an amendment in the Law on Investment Funds limited the stakes of investment funds in individual enterprises to 11 percent (currently 20 percent); and envisages the conversion into open-ended mutual funds those closed-end investment funds whose shares have been trading at a discount to their net asset value of more than 40 percent over a three-month period;

- a Securities Commission will be established in 1998 to regulate and supervise capital markets.

C. Bank Restructuring and Privatization

123. A key element of the policy package announced in April 1997 was the decision to accelerate the privatization of state-controlled banks. The main motivation for this was the desire to improve governance and practices in the banking system while preparing the banks for the increased competition in the EU. In addition, divestment of the banks would assist in adding pressures on the enterprise sector to improve corporate governance and speed up restructuring by hardening the budget constraints that enterprises face. Simultaneously, the authorities have continued their efforts to consolidate and restructure the banking system, most recently through support to the troubled small- and medium-sized banks. This section reviews progress to date in consolidating and stabilizing the banking system and the strategy for privatizing the state-controlled banks.

Overview of the Consolidation Program

124. The rehabilitation of the banking sector in the Czech Republic has gone through three phases: First with the consolidation of large banks in the early 1990s; second with the consolidation of small and medium-sized banks in the mid-1990s; and third with a further "stabilization" program for small banks starting in 1997. The first phase of the banking sector consolidation was implemented in 1991–93 (Consolidation Program I) and involved strengthening the position of the large state-owned banks through purchase of bad assets by the Consolidation Bank and recapitalization.[79] The cost of these operations amounted to CZK 30 billion, of which CZK 22 billion related to the takeover of bad loans and CZK 8 billion to new capital. The cost of these operations was covered from the privatization

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[79]See the 1996 Recent Economic Developments for further details.

proceeds of the NPF.[80] In addition, the Consolidation Bank purchased other credits at 80 percent of face value in an amount of CZK 15 billion. The total support and cost in this first phase of the consolidation effort was thus CZK 45 billion (about 6 percent of 1992 GDP).

125. The second phase of the consolidation program (Consolidation Program II) was initiated at the end of 1995 following the failure of two smaller private banks (Ceska and AB Banka). This program focused on the small- and medium-sized banks established as new private banks after the beginning of the transition. Eighteen banks were selected for the program (covering nine percent of banking sector assets), of which nine were dealt with through capital increases by existing shareholders and new investors, two were taken over by Union Banka, five were placed under forced administration,[81] and two were liquidated (including Kreditni Banka) (Table 17). Of the banks placed under conservatorship, one was subsequently taken over by Union Banka and one was liquidated, while solutions are still being sought for the remaining three banks. Deposit insurance was raised from the official limit of CZK 100,000 to CZK 4 million in the banks covered by Consolidation Program II, whereby 99 percent of all deposits were protected fully and 66 percent of total deposits were covered. The total resources committed and the implicit cost of this second phase of the consolidation program amounted to some CZK 30 billion (about 2 percent of 1996 GDP). This cost was borne by the CNB.

Table 17. Czech Republic: Results of the Consolidation Program for Small Banks

	Number of banks	Share of Total Banking Sector Assets (6/30/96)
No solution required	3	1.1
Capital infusion	6	4.0
Takeover	3	1.7
Of which after conservatorship	1	0.8
Conservatorship 1/	3	0.6
Liquidation	3	1.5
Total	18	8.9

Source: Czech National Bank.

1/ One medium-sized bank is also under conservatorship taking the total currently to four.

[80]A further CZK 5 billion was transferred to the Consolidation Bank at the end of 1997.

[81]Banks placed under forced administration are kept open with the central bank acting as lender of last resort.

126. The liquidation of Kreditni Banka in August 1996 led to a run on the closely associated Agrobanka, a medium-sized bank covering about 5 percent of deposits, and the bank was placed under forced administration, bringing the total number of banks currently managed this way to four. Outstanding liquidity support from the CNB to Agrobanka amounted to around CZK 16 billion, of which the authorities estimated that more than half would not be recovered. Attempts are ongoing to sell the bank to a foreign investor. There was also a small outstanding amount of liquidity support to other banks (about CZK 4 billion).

The Stabilization Program for Small Banks

127. The problems in Agrobanka led to the announcement in October 1996 of a program to further stabilize and strengthen the position of the small banks. The objective of this program is to restore the remaining problem banks to viability over the medium term through injection of additional private capital and recapitalization through profit generation. The government will provide cash-flow relief through the temporary purchase of bad assets at face value and will indirectly support the banks by forgoing interest. Banks are required to buy back the bad assets within a period of 5–7 years—in effect it is thus a long-term, interest-free repurchase agreement. Thirteen banks initially qualified for the program, but only six were interested in participating. These were approved by the central bank by October 1997 and will share the CZK 14 billion committed to the program. The authorities expect that the nominal value of the support will be fully recovered.

128. The key condition for participating in the program was the approval by the central bank of medium-term workout plans that would restore the banks to a viable position and allow them to repurchase the bad assets. These plans include improvements to, and the potential replacement of, management, reduction of high-risk activities (including limits on securities trading on own account), compliance with prudential regulations (capital, liquidity, lending, etc.), reductions in wage and operating costs, and accumulation of sufficient reserves, if needed through restrictions on profit distribution. Indications from shareholders to provide additional capital were generally an important element of the plans. Banks participating in the scheme would be subject to closer monitoring, although the authorities did not insist on representation on the respective bank boards. The central bank reserves the option to close a bank that is not complying with its plan, and such a procedure was initiated in one case (but subsequently aborted as the program was brought back on track).

129. The program was initially financed through the extension of short-term credit from the central bank to Ceska Financni (CF), a special purpose vehicle set up as a subsidiary of the CNB. CF was to be refinanced at market cost through the Consolidation Bank that would issue bonds for this purpose. The CNB also extended credit to CF in connection with the transfer of bad assets acquired directly by the central bank during the second phase of the consolidation program. At the end of September 1997, CF's bad assets amounted to about

CZK 24 billion, of which about CZK 17 billion represented loans and the rest, equities. Of this amount, about CZK 11 billion related to the stabilization program, CZK 9 billion to the second phase of the consolidation program, and CZK 4 billion to liquidity support extended by the central bank to smaller banks. CF can dispose of assets at a discount with the consent of the bank from which the assets were purchased. The bank will then be liable for the difference between the book value and the discounted sale price.

130. In summary, support amounting to some CZK 64 billion (3½ percent of GDP) was extended to the small and medium-sized banks in 1996–97 in connection with the second phase of the consolidation program (CZK 30 billion), the stabilization program (CZK 14 billion), and liquidity support to Agrobanka (CZK 16 billion) and other banks (CZK 4 billion). Of this amount, the authorities expect to recover about CZK 25 billion (1½ percent of GDP), somewhat less in present value terms. These are capital costs only, with no imputation of interest. The Government has issued a guarantee for CZK 22 billion to the CNB to cover potential losses from the support to the small and medium-sized banks. This guarantee, however, can only be called after 10 years.

Privatization of Large Banks

131. As mentioned, a key element of the April 1997 policy package was the announcement of the intention to accelerate the privatization of the four large, state-controlled banks (Komercni Banka, CSOB, Ceska Sporitelna, and IPB).[82] The State has retained a controlling stake in each of these banks, amounting to 65 percent in CSOB, 49 percent in KB, 45 percent in CS, and 36 percent in IPB (Table 18).

132. In July 1997, the government reached an agreement in principle on the sale to Nomura of the State's shareholding in IPB, in which Nomura had already acquired a significant stake. This weakened the government's bargaining position and negotiations were protracted, partly because of the need to complete separate audits commissioned by the two parties.[83] A final agreement was reached in late January 1998 under which Nomura would

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[82]Significant divestment have already occurred as part of the voucher privatization with the sale of 53 percent of the shares in Kormercni, 52 percent of the shares in IPB, and 37 percent of the shares in CS. However, diffuse ownership and a restriction on foreign participation has effectively ensured that these remain state-controlled. 34 percent constitutes a blocking minority share.

[83]Price Waterhouse conducted the audit for Nomura and Ernst&Young the audit for the government. The 1996 accounts of the bank were initially audited by Coopers & Lybrand who pointed to a substantial shortfall of reserves (around CZK 10 billion), but this report was not accepted by the bank and a subsequent audit by Ernst & Young did not reach this

(continued...)

pay just under CZK 3 billion and inject additional capital as well as raise long-term funds for a total of CZK 12 billion.

Table 18. Czech Republic: Ownership Structure in State-Controlled Banks (1997)

(In percent)

	CS	KB	IPB	CSOB
Major shareholders	65.7	65.5	75.6	88.8
State	45.0	48.7	36.0	64.7
Other residents	17.7	3.8	39.6	--
Non-residents 1/	3.0	13.0	--	24.1
Small shareholders	34.3	34.5	24.4	11.2
Domestic banks	8.3	12.0	10.2	1.6
Foreign banks	7.3	19.7	10.5	0.5
TOTAL	100.0	100.0	100.0	100.0

Source: Czech National Bank.

1/ Mainly Slovakia.

133. In November 1997, the Klaus cabinet approved a strategy for privatizing the three other banks, according to which the divestment process would be carried out simultaneously for all banks with an initial sale of a strategic share in each of the banks to a single foreign investor.[84] The government intended to sell at least 34 percent (and up to 51 percent) of the total shares in CSOB and 34 percent each of the shares in Komercni and Sporitelna. The sales would be conducted through a competitive bidding process in which each bidder could only obtain information in the due diligence process on one of the banks. The aim was to complete at least one of the sales by the end of 1998.

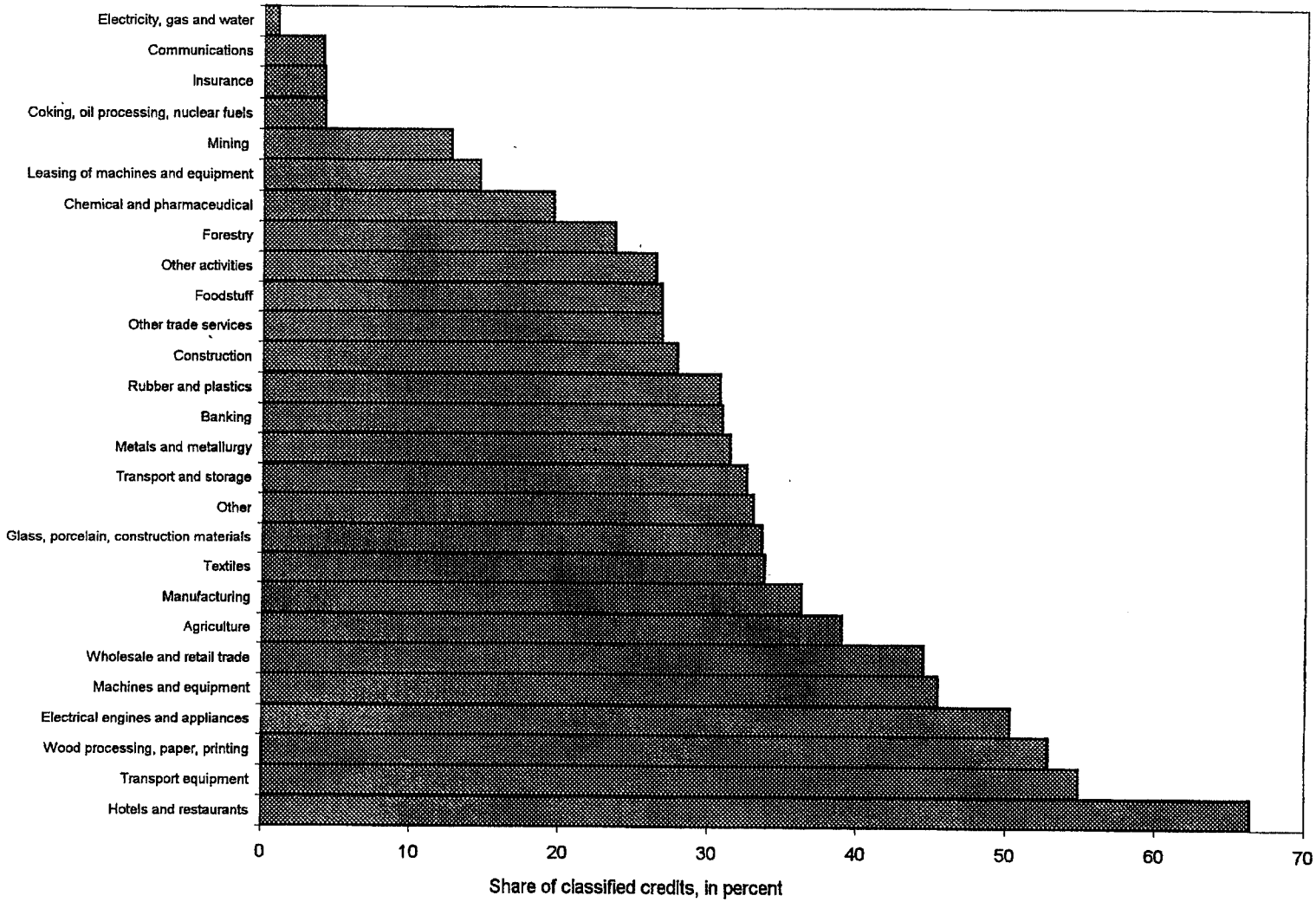
134. These divestment plans were very ambitious and indicative of the authorities' confidence in the financial health of the banks, but the process is likely to be slowed down with the change in the political situation in late 1997 and early 1998. While the caretaker cabinet of Mr. Tosovsky appointed in January 1998 is proceeding with the technical

[83](...continued)
conclusion.

[84]EBRD and IFC have expressed interest in participating in the privatization of the three banks.

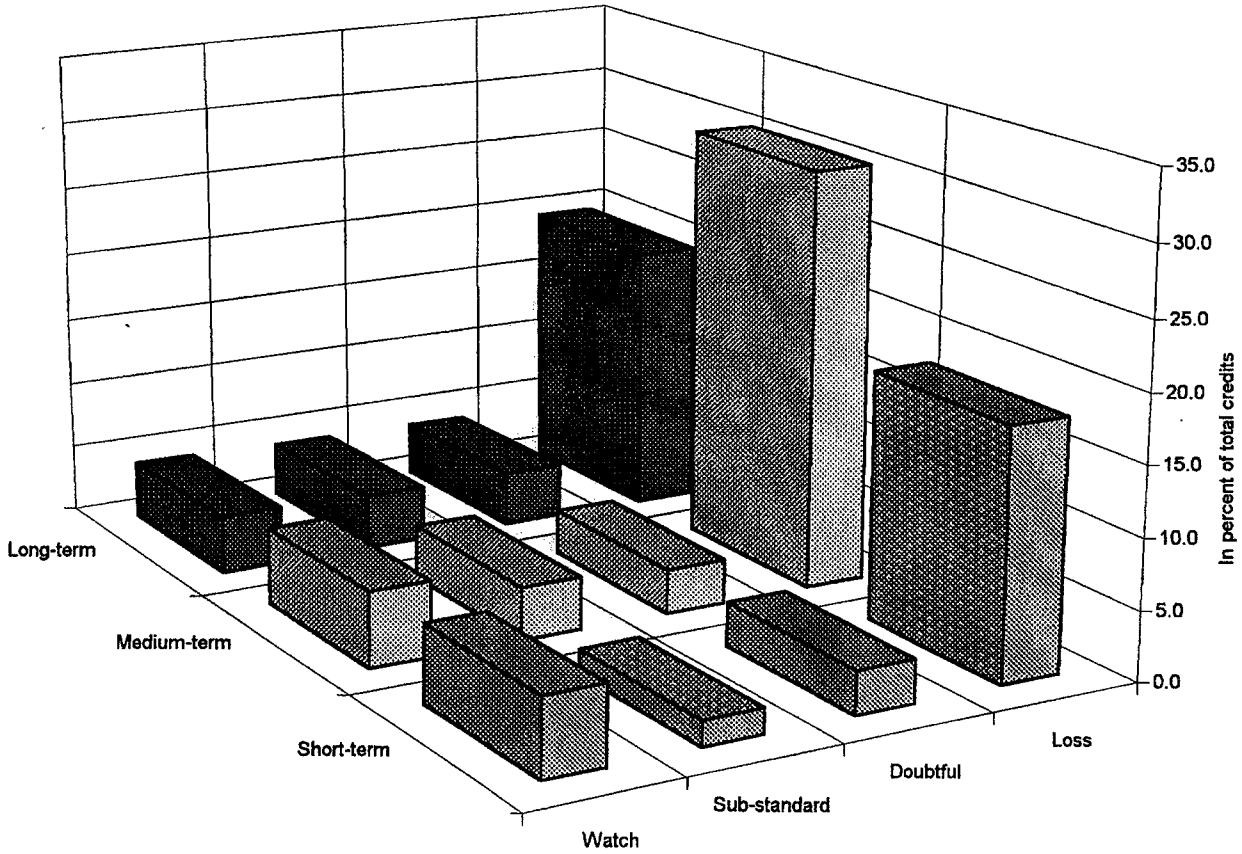
preparation of the sales (advisors are being selected), a final decision is not likely to be taken until after the elections currently slated for mid-1998. Other factors may also complicate the process, notably certain bilateral disputes with Slovakia. An agreement has been reached in principle regarding Slovakia's shares in Komercni, but an outstanding dispute concerning the CSOB has not yet been resolved. Specifically, the CSOB has a sizable nonperforming loan outstanding to the Slovak Collection Unit (a subsidiary of the Slovak Ministry of Finance), which is currently undergoing international arbitration.

Figure 25. CZECH REPUBLIC
DISTRIBUTION OF CLASSIFIED CREDITS BY SECTOR



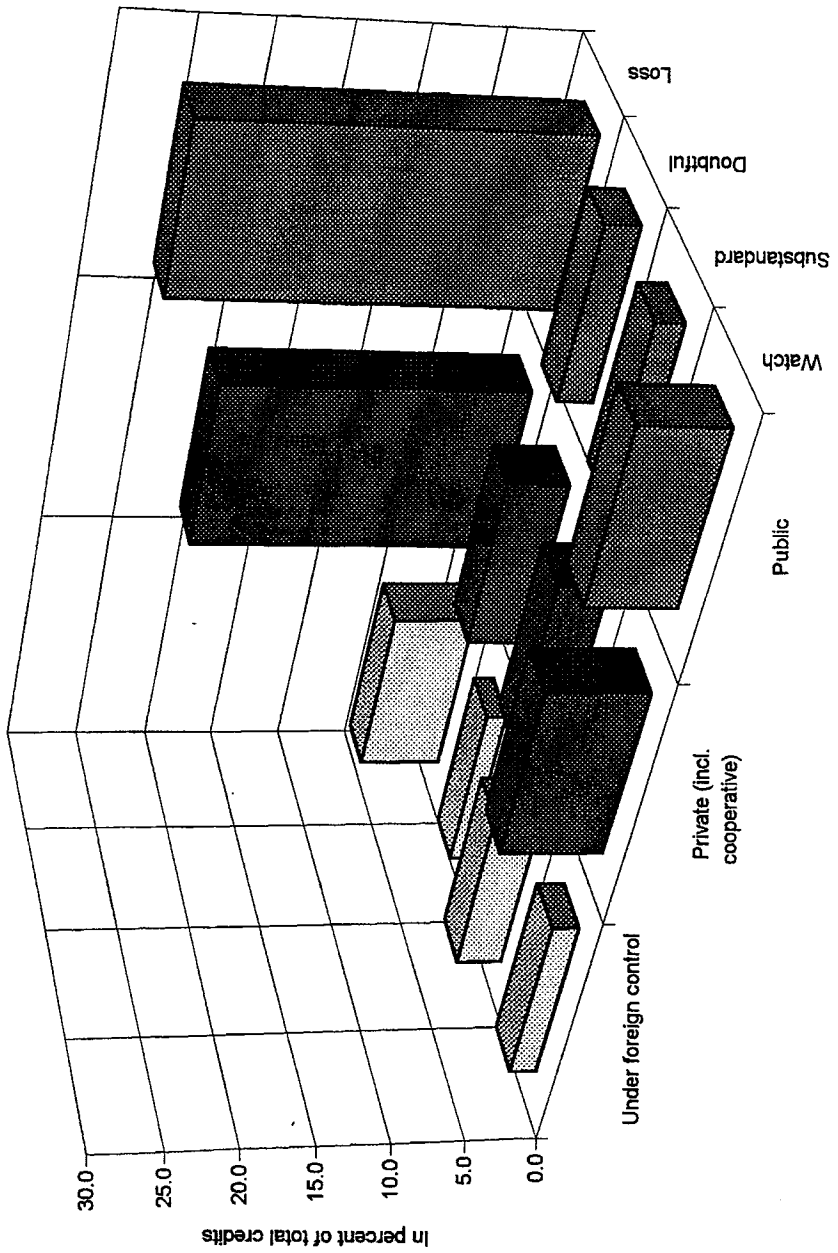
Source: CNB

Figure 26. CZECH REPUBLIC
DISTRIBUTION OF CLASSIFIED CREDITS BY MATURITY
(June 1997)



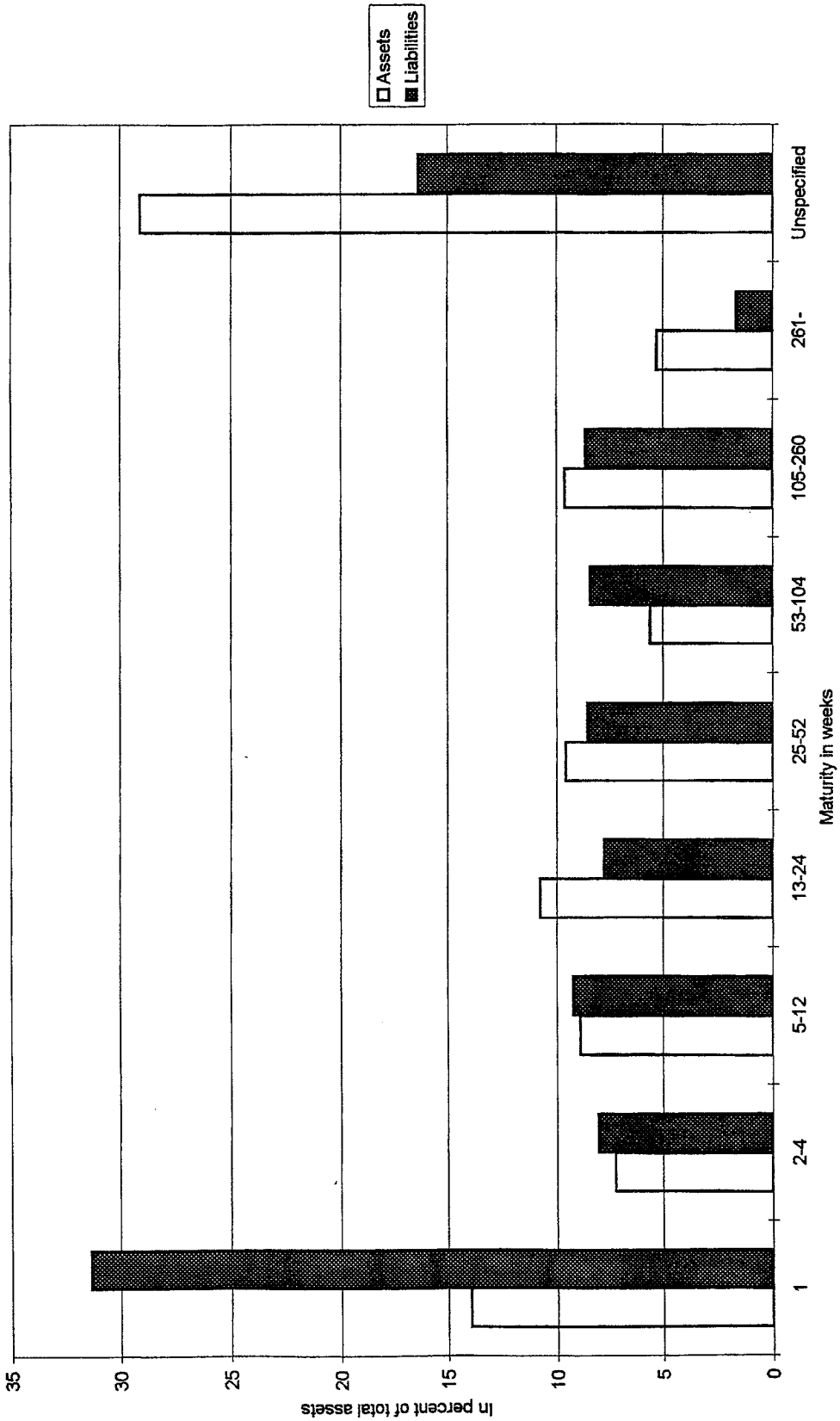
Source: CNB.

Figure 27. CZECH REPUBLIC
DISTRIBUTION OF CLASSIFIED CREDITS BY TYPE OF BORROWER
(June 1997)



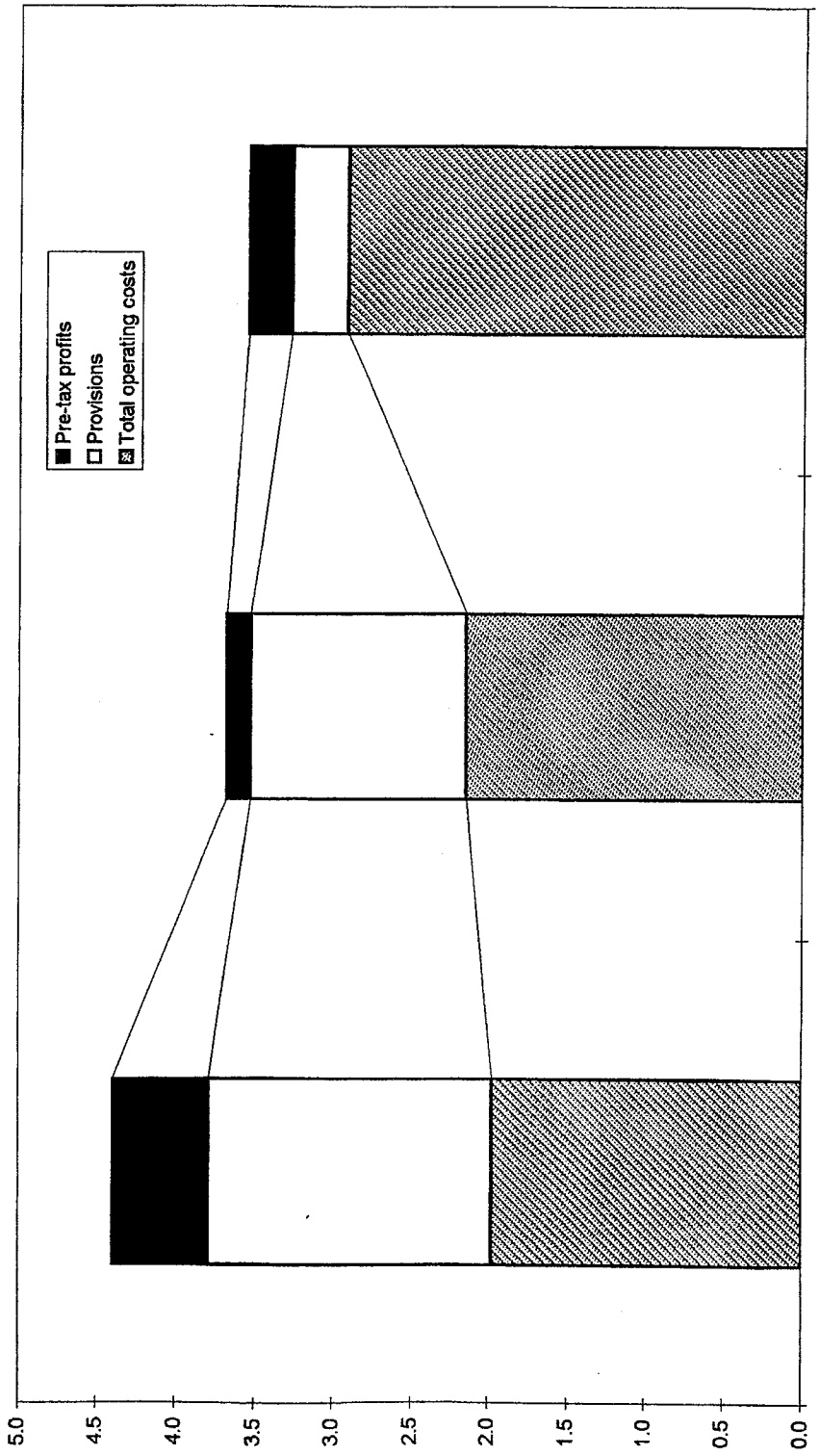
Source: CNB.

Figure 28. CZECH REPUBLIC: DISTRIBUTION OF ASSETS AND LIABILITIES BY RESIDUAL MATURITY
(June 1997)



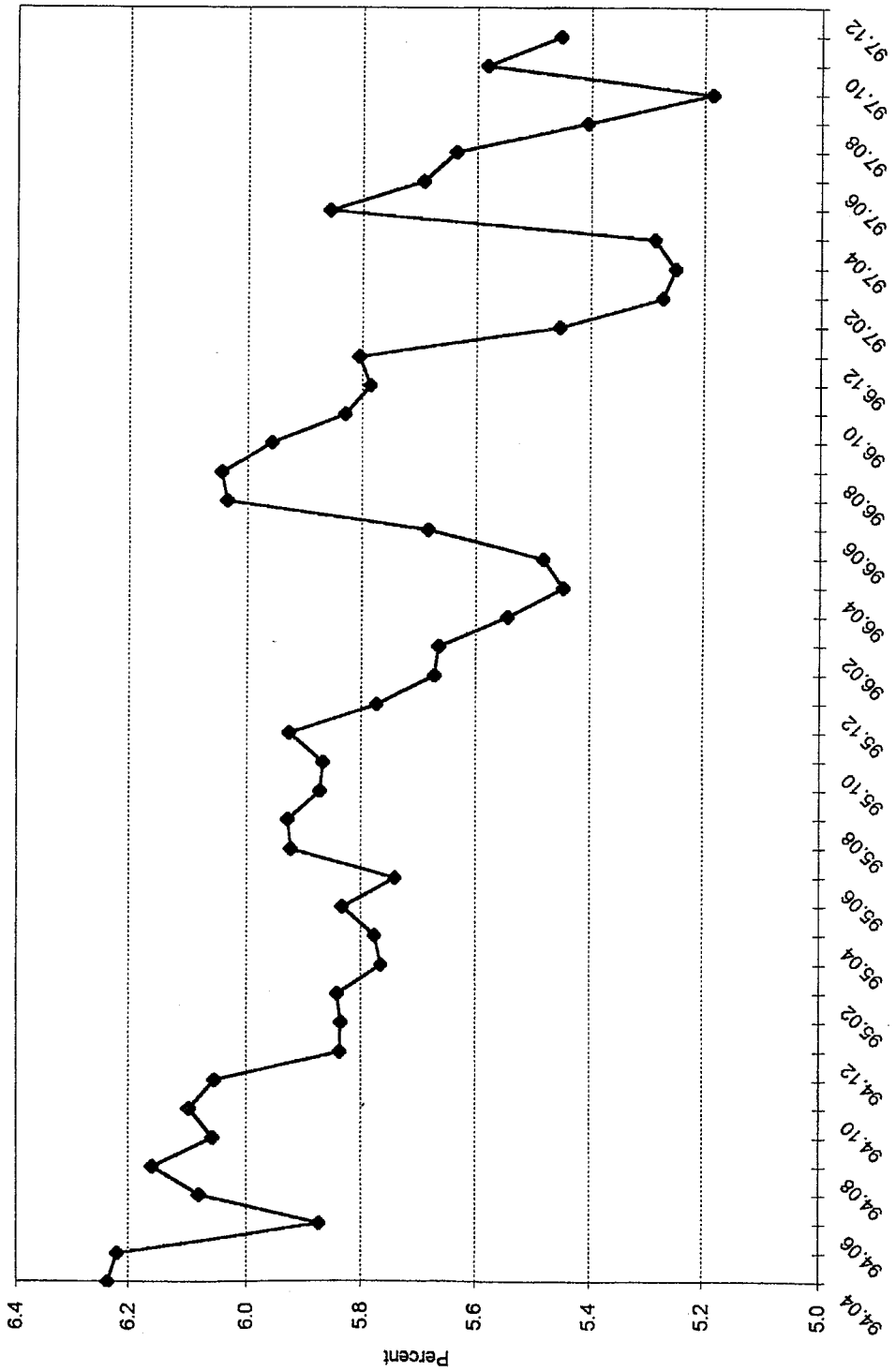
Source: CNB

Figure 29. CZECH REPUBLIC
ALLOCATION OF GROSS INCOME FROM BANKING ACTIVITY



Source: CNB.

Figure 30. CZECH REPUBLIC: INTERMEDIATION SPREAD
(Average Lending Minus Average Deposit Interest Rate)



Source: CNB.

VI. External Sector Developments [85]

136. Economic developments since the mid-1990s in the Czech Republic have been characterized by a rapid widening of the current account imbalance through early 1997, which eventually led to mounting uncertainty in the foreign exchange market and a foreign currency crisis in May 1997. Specifically, the current account deficit grew from 2 percent of GDP (US$0.7 billion) in 1994 to 7½ percent of GDP in 1996 (US$4.3 billion), and to 8½ percent of GDP in the first quarter of 1997. This outcome reflects both an increase in domestic investment and a decline in savings, and is partly attributable to huge capital inflows, which peaked at 16 percent of GDP in 1995. These inflows financed fixed investment and fueled increases in wages—and hence consumer spending.

137. Following the currency crisis, the current account deficit narrowed to about 5 percent of GDP in 1997 H2, as the combined effects of a tightening in financial policies dampened domestic demand and import growth, and a sharp recovery in exports—due to improved demand conditions abroad, earlier foreign direct investments coming on stream, and a somewhat depreciated exchange rate—took hold. Notwithstanding the loss of almost US$1½ billion in official reserves in 1996 and US$3 billion in 1997, reserve cover is still prudent at 3½ months of current account payments and about 1⅓ times the level of short-term external debt. Debt service remains relatively low. The ratio of gross external debt to GDP has risen rapidly to reach 40 percent of GDP—the level commonly applied as a prudential threshold. Overall, however, the Czech Republic remains a small net external creditor, when direct investment is excluded, which together with a floating exchange rate and a narrowing external deficit should help reduce its vulnerability to shocks.

A. External Developments Since 1993

138. This section traces the evolution of the current account, with a view to understanding its key determinants and assessing its sustainability, through developments in (a) its main components (exports and imports of goods and nonfactor services and net factor income), (b) its saving-investment counterpart, and (c) the composition of its financing.

Trade

139. The deterioration in the current account has closely mirrored that of the trade balance (Table 19; Figure 31). During 1993-96, the share of exports in GDP declined by almost 3 percentage points, to 38½ percent in 1996, while that of imports increased by more than 6 percentage points to 49 percent of GDP. In 1997, the export and import ratios are estimated to have risen by 4 and 2 percentage points, respectively (the increase reflects in part the valuation effects of the koruna depreciation).

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[85]Prepared by David Bendor.

Table 19. Czech Republic: Balance of Payments, 1993-97 1/

(In percent of GDP)

	1993	1994	1995	1996	1997 Q1-Q3 Prelim.	1997 Est.
Trade balance	-1.4	-3.4	-7.3	-10.5	-9.1	-8.4
Exports	41.3	40.3	42.6	38.6	42.9	42.6
Imports	42.7	43.7	49.9	49.1	52.0	51.0
Services balance	2.9	1.2	3.7	3.4	3.1	3.1
Receipts	13.7	13.0	13.3	14.6	13.6	13.7
Transportation	3.6	3.1	2.9	2.4	2.5	2.5
Travel	4.5	5.6	5.7	7.3	7.1	6.9
Other	5.6	4.3	4.7	4.9	3.9	4.3
Payments	10.8	11.8	9.7	11.1	10.5	10.6
Transportation	2.1	2.2	1.6	1.2	1.3	1.2
Travel	1.5	4.0	3.2	5.3	4.6	5.0
Other	7.1	5.6	4.8	4.6	4.7	4.4
Factor income and unrequited transfers	-0.1	0.3	0.9	-0.6	-0.7	-1.0
Current account	**1.5**	**-1.9**	**-2.7**	**-7.6**	**-6.7**	**-6.3**
Direct investment, net	1.6	1.9	5.0	2.5	2.2	1.8
Portfolio investment, net 2/	3.0	2.2	2.7	1.3	1.6	0.6
Of which:						
Debt creating	1.3	1.0	0.9	0.3	1.1	...
Other long term capital, net	2.4	2.8	6.7	5.5	2.3	2.5
Short-term capital, net	0.2	1.7	1.9	-1.6	-2.2	-1.9
Capital account	**7.1**	**8.5**	**16.3**	**7.6**	**3.8**	**3.0**
Errors and omissions	0.2	-0.6	1.2	-1.5	1.4	-0.4
Overall balance	8.8	6.0	14.8	-1.5	-1.5	-3.8
Gross official reserves (-, increase)	-8.8	-6.0	-14.8	1.5	1.5	3.8
Fund credit, net	0.0	-2.8	0.0	0.0	0.0	0.0

Sources: Data provided by the Czech National Bank; and staff estimates.

1/ Includes transactions in convertible and nonconvertible currencies, and transactions with Slovakia; based on new customs methodology.

2/ The transfer to Slovak citizens of shares in enterprises privatized in the first wave of voucher privatization and the corresponding offsetting portfolio investment have been netted out.

Table 20. Czech Republic: Trade Volumes and Demand, 1993-97

(In percent change, in real terms)

	Goods and Services		Goods		Services		Foreign Demand 1/		Internal Demand	
	Exports	Imports	Exports	Imports	Exports	Imports	Goods & services	Goods 2/	Domestic Demand	Total Import Demand 3/
1993	...	...	11.4	13.4	...	...	2.4	1.5	1.2	...
1994	...	...	6.5	20.2	...	...	7.5	8.4	7.6	7.2
1995	15.9	21.7	15.5	26.8	16.2	1.9	8.4	9.1	9.3	11.6
1996	3.3	11.7	0.0	11.1	14.8	14.5	4.8	5.9	9.1	7.1
1997 Q1-Q3	9.7	6.5	10.3	6.7	-4.5	0.3	8.3 4/	9.0 4/	-0.1	3.3

Source: Czech Statistical Office, WEO, and Fund staff calculations.

1/ Foreign demand of partner countries of the Czech Republic, excluding Slovakia.
2/ Excluding oil.
3/ Growth in the sum of domestic demand plus real exports.
4/ Full-year projection.

140. Exports have broadly tracked developments in domestic and foreign demand and in external competitiveness, while some of the volatility in the series may be attributed to special supply factors (Table 20; Figure 32).[86]

- Export volume growth during 1993-95 averaged 11 percent per annum, and was almost double that of foreign demand. This reflected in part the impact of the "cushion" of price competitiveness established by the nominal depreciation of the koruna in 1990-91, which helped exporters to successfully divert goods from traditional (Eastern European, CMEA) to new (Western European, EU) markets (Table 21).[87] These factors dominated the negative influence of a rapid acceleration in domestic demand (from about 1 percent in 1993 to 8-9 percent in 1994-95)[88] that added to a build-up of pressure on domestic resources.

Table 21. Czech Republic: Export Market Shares, 1993-96

(Share, in percent of total)

	1993	1994	1995	1996
World	0.38	0.38	0.42	0.41
EU	0.55	0.60	0.69	0.65
Germany	1.27	1.51	1.83	1.77

Source: Czech Statistical Office, IMF Direction of Trade Statistics, and Fund staff calculations.

[86]A priori, one would expect exports to be positively related to foreign demand, and negatively related to domestic demand (which acts to divert exportables to the home market when it increases).

[87]The unit labor cost (ULC) based real effective exchange rate (REER) appreciated rapidly between 1990 and 1993, as output fell without an equivalent labor shedding. When output recovered and industry continued to shed labor, the rate of REER appreciation slowed down. This notwithstanding, exporters were generally able to increase their prices (partially through product and quality enhancements); meanwhile import prices were kept low (relative to domestic prices) such that the overall terms of trade steadily improved (Figure 33).

[88]The growth of domestic demand in 1993 is based on the national accounts series at constant 1984 prices, which is currently under revision.

- Exports stagnated in 1996. This is probably explained by a combination of factors. With *domestic demand* continuing to rise much faster than real GDP for a third consecutive year, tradables—especially in traditional/basic goods sectors—were probably diverted to the home market to an even greater extent.[89] Meanwhile, *foreign demand growth*—dominated by Germany, which alone accounts for more than one-third of Czech exports—decelerated by 3 percentage points, to 6 percent in 1996.[90] The growth of foreign investment demand—a more pertinent variable given the commodity composition of Czech exports—decelerated even faster (Table 22 and Table A38, SM/98/30, Sup. 1, (1/30/98)). It also seems likely that by 1996, external competitiveness had been significantly eroded: the ULC-based REER had appreciated by another 4½ percent in 1996, which probably removed the remaining "cushion" of competitiveness (Figure 34; see Box 2 for an discussion of competitiveness).

- Export volume growth reached 10.3 percent during Q1-Q3 1997, although the turnaround only began in April 1997. The recovery in Germany and the sharp deceleration in domestic demand in the Czech Republic were important, and other (supply) factors also were at play. However, the exchange rate depreciation was not likely to have played an important role, in part owing to relatively long lags which are normally associated with the export supply response function.[91] New foreign direct investments and joint ventures coming on stream further contributed to the "jump" in exports in 1997.[92] The revealed comparative advantage of the Czech Republic is based on its low level of local wages, a skilled

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[89]The shares of iron and steel and electrical machinery exports declined in 1996, likely as a result of buoyant fixed investment; competition from lower cost Eastern European producers may also account for the weakening performance of iron and steel.

[90]Market re-orientation, seen in 1993-95, was less evident however, as the Czech share of world trade also fell. See also Jack (1996) for a historical perspective on market share developments.

[91]Basic materials and manufacturing sectors, including textiles and metals, may have benefited from the depreciated exchange rate.

[92]While manufacturing has typically accounted for less than half total FDI, there is a lagged relationship between investment in machinery and equipment, and chemicals, and these exports.

Box 2: External Competitiveness of the Czech Industry

During the period 1991-May 1997, when the koruna was pegged to a currency basket,[1] external competitiveness and enterprise profitability were gradually eroded as rapid increases in real wages fed through into rising prices and unit labor costs, which coupled with nominal appreciation pressures during 1996 and 1997 Q1, caused the real exchange rate to appreciate further (Figure 34; Table A.44). The koruna was pegged to a basket in 1991, after the nominal effective exchange rate had depreciated by about 80 percent: The initial overshooting helped to establish a "cushion" for competitiveness. During the period of the peg the real effective exchange rate (REER) had steadily appreciated by between 55 percent (based on consumer prices, CPI) and 60 percent (based on unit labor costs, ULC), and the nominal effective exchange rate (NEER) by about 3 percent. During May– September 1997, the NEER depreciated by 3¾ percent, and the ULC-based REER depreciated by about 12 percent, restoring external competitiveness to the level of 1995. It may be noted, however, that such exchange rate based measures may not accurately reflect developments in competitiveness beyond broad trends in light of statistical data deficiencies (see in particular Chapter II on the issue of likely overestimation of productivity growth in industry).

[1]From 1991 until the adoption of a managed float on May 27, 1997, the central rate was pegged to a hard currency basket which (from 1993) comprised the Deutsche mark (65 percent) and the U.S. dollar (35 percent). At end-February 1996, the CNB widened the exchange rate band from ±½ percent to ±7½ percent around the central rate.

industrial labor force and its location at the center of Europe.[93] Sectors that benefited from foreign investment include road vehicles, electrical machinery, and chemicals (Table A40, SM/98/30, Sup.1).[94] In the case of road vehicles, the launch of a new Škoda-Volkswagen sedan model helped enhance volume growth of road vehicles (SITC 78);[95] other notable investments coming on stream included investments by Siemens and Matsushita. It should be noted however that the Czech value added of many of these "new" exports is low since they rely more heavily on the use of imported inputs as local firms become more integrated with suppliers abroad.

[93]A recent survey reported by the Czech investment agency (CzechInvest) found that there are over 600 joint-ventures in the manufacturing sector, which account for 40-50 percent of all Czech exports. Of these, 40 percent are working three daily shifts (presumably close to full capacity) and a similar percentage are taking on new employees and are re-investing profits.

[94]The extent to which supply constraints have negatively impacted on exports, especially in 1996, is unclear. The CSO measure of capacity utilization indicates that total industrial capacity utilization remained unchanged at 83 percent in 1996, but key export sectors (including chemicals and motor vehicles) increased utilization rates by up to 5 percentage points, in the period January 1996–July 1997.

[95]Škoda-Volkswagen unit exports to Germany rose by 39 percent in 1997, in line with the total unit increase.

Table 22. Czech Republic: Export Composition, 1993-97

		Contribution to total export growth 1/ (percentage points)					Share in total exports (in percent)				
		1993	1994	1995	1996	1997 Jan.-Sep.	1993	1994	1995	1996	1997 Jan.-Sep.
Category	**SITC**										
Food and basic materials	0-4+9	...	0.2	1.9	0.0	0.3	18.6	17.0	15.3	14.7	13.3
Chemicals	5	...	1.2	2.3	0.0	1.1	8.9	9.2	9.3	9.0	8.8
Manufactures	6	...	3.7	9.3	-2.4	2.2	29.9	30.4	32.2	28.8	27.3
Manufacturing and transport equipment	7	...	2.6	8.8	3.5	10.6	29.1	28.7	30.4	32.7	37.3
Miscellaneous manufactures	8	...	2.9	0.9	2.4	1.4	13.5	14.8	12.8	14.7	13.4
Total	0-9	...	10.6	23.2	3.5	15.6	100.0	100.0	100.0	100.0	100.0
Memo item 1:											
Iron and steel	67	...	...	...	-1.4	0.0	...	...	8.7	7.0	6.3
Electrical machinery	77	...	...	...	0.0	2.6	...	...	7.2	6.9	8.2
Road vehicles	78	...	...	...	2.3	4.6	...	...	7.3	9.3	11.9
Memo item 2:											
Exports to Germany		...	9.3	11.6	-0.3	5.0	...	...	37.6	36.0	35.9

Source: Data provided by the Czech Statistical Office and Fund staff estimates.

1/ Based on merchandise exports denominated in koruny.

Anecdotal evidence suggests that stocks were run down in less advanced sectors in 1997. One-off exports, including the sale of decommissioned aircraft, also helped boost export revenues.

141. The evolution of imports has been closely related to developments in total (domestic and export) demand as well as the real effective exchange rate as, until recently, consumers found imports increasingly affordable (Table 20; Figure 35).[96]

- Import volume growth rose steadily from 13 percent in 1993 to 27 percent in 1995, which was well in excess of growth in domestic or total demand, suggesting that the real currency appreciation made foreign products increasingly attractive and affordable to Czech consumers and investors. Over this period, the composition of imports (in terms of consumer, intermediate and investment goods) changed very little (Table 23).

- Import volume growth slowed markedly in 1996, to 11 percent, but remained relatively high in relation to domestic and, especially, total demand given stagnant exports. Import volume growth decelerated much less than domestic demand in 1997, apparently reflecting increased demand for imported inputs for exportables.[97]

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[96]The Czech National bank's classification of each category is based on 3-digit Standard International Trade Classification categories and needs to be interpreted with care, the investment share is too high. Such disaggregated sectoral data is unavailable prior to 1995, when the new methodology trade data was introduced.

[97]Government concerns about the growing trade imbalance led to the imposition of a 6-month noninterest-bearing deposit equal to 20 percent of import value on consumer and agricultural goods between April and August 1997, which resulted in some temporary compression of these items. The scheme was to have been in place for one year, but was abolished sooner—once signs that the trade balance was improving were confirmed. (The weighted average import tariff in 1997 was about 5 percent, ranging from 4 percent on primary goods to 10 percent on finished goods; tariffs were generally applied uniformly.)

Table 23. Czech Republic: Composition of Imports, 1995-97

	(Share, in percent of total)			(Growth rate, in percent)	
	1995	1996	1997 Jan.-Aug.	1996	1997 Jan.-Aug.
Investment	38.9	39.2	38.9	13.5	10.5
Intermediate	36.5	35.5	36.1	9.5	11.5
Consumption	24.6	25.3	24.9	15.7	9.5

Sources: Czech National Bank, and Fund staff calculations.

Services, Factor Income and Transfers

142. Traditionally, the **services balance** has been in surplus, helping to offset the merchandise trade deficit (Figures 31 and 36). Total services receipts remained fairly stable at around 14 percent of GDP during 1993-97. Travel receipts had shown a steady increase between 1993 and 1996 (rising by about 3 percentage points of GDP, to 7½ percent), as visitor numbers grew and the sector expanded. Tourism fared less well in 1997 as visitor numbers stabilized—partly because of emerging capacity constraints. Services payments showed similar patterns, with total payments broadly constant at about 11 percent of GDP, while travel payments increased by almost 4 percentage points between 1993 and 1996, to 5½ percent of GDP, aided by real wage gains and the koruna appreciation.[98] Travel payments declined in 1997 as the economy slowed and uncertainty increased (following the exchange rate crisis), while a series of bankruptcies among travel agents and the floods also depressed foreign travel.

143. As the Czech Republic has become more reliant on debt financing and joint ventures have come on stream, the **factor income balance** has grown more negative (Table 24). Almost one-third of the deterioration of the current account in 1996 was attributed to the deterioration in factor income and unrequited transfers.[99] Indeed, 1996 was the first year that the Czech Republic incurred a deficit on profits and other remittances, as joint ventures and

[98]The travel item includes tourism and "shuttle" or cross-border trade with neighboring countries. The latter was first estimated in the balance of payments in 1994: the Czech Republic has more informal imports (e.g., from Poland) than exports. This level change distorts the series for the real growth of imports of services in 1995.

[99]In 1995, net interest payments were US$–134 million while profits were US$28 million; in 1996 these were US$–475 million and US$–248 million respectively.

foreign workers repatriated more profits/income abroad. Interest receipts stabilized, while payments increased as external debt obligations rose (Table 25).[100]

Table 24. Czech Republic: Income and Transfers Balances, 1993-97

(In millions of U.S. dollars)

	1993	1994	1995	1996	1997 Jan.-Sep.
Income balance	-117	-20	-106	-722	-505
Credit	547	789	1,194	1,170	1,074
Interest receipts	377	605	980	994	...
Profits and other	170	184	214	176	...
Debit	665	809	1,300	1,893	1,578
Interest payments	640	729	1,114	1,469	...
Profits and other	25	80	186	423	...
Transfers	99	126	579	385	236
Private	...	...	...	255	...
Official	...	...	...	130	...

Sources: Data provided by the Czech National Bank, and Fund staff estimates.

[100]Interest payments in convertible currencies, on medium- and long-term debt, rose across a wide range of instruments and borrowers—notably commercial bank credit and bonds, as well as corporations' trade credits (Table A42, SM/98/30, Sup. 1). Interest payments may also have risen as Czech entities turned to koruna financing (see Box 3); CNB statistics have included koruna denominated foreign assets and liabilities from September 1996.

Table 25. Czech Republic: Foreign Assets and Liabilities, 1993-97

	1993	1994	1995	1996	1997 Sep.
	(In millions of U.S. dollars, end-of-period)				
Foreign assets	17,906	20,424	29,347	30,474	28,997
Convertible currencies	11,022	13,634	22,876	26,428	25,050
Official reserves	3,872	6,234	14,023	12,435	10,937
Short-term commercial banks	2,373	2,649	3,363	5,065	5,682
Other foreign assets	4,777	4,742	5,490	8,927	8,432
Non-convertible currencies	6,885	6,790	6,471	4,047	3,947
Foreign liabilities	9,959	12,668	18,845	24,588	24,542
Convertible currencies, debt	8,496	10,694	16,549	20,845	21,003
Long-term liabilities	6,494	7,806	11,504	14,823	14,938
Short-term liabilities	2,002	2,888	5,045	6,022	6,065
Convertible currencies, portfolio	354	458	1,654	3,398	3,268
Non-convertible currencies, debt	1,109	1,516	642	336	271
	(In percent of GDP)				
Memorandum item:					
Foreign assets	52.0	51.5	58.1	54.3	55.6
Foreign liabilities	28.8	32.1	37.3	43.8	47.1
Net foreign assets	23.2	19.4	20.8	10.5	8.5

Source: Data provided by the Czech National Bank, and Fund staff estimates.

Savings and Investment

144. The deterioration in the current account reflects the relative strength of fixed investment and a concurrent weakening of domestic savings. Between 1993 and 1996, gross domestic investment as a ratio to GDP rose by 5 percentage points to 33 percent, while the gross national savings ratio fell by 4 percentage points to 25½ percent of GDP (Table 26; Figure 37). Preliminary estimates for 1997 indicate decreases in savings of 1½ percentage points, and investment, of 3 percentage points.[101]

[101]The national accounts suffer from weaknesses in coverage and reporting, and need to be treated with caution. Savings and investment, in relation to GDP, are unusually high by international standards. The Czech Statistical Office practice is to include the statistical discrepancy item with stocks, which likely overstates non-government savings. Hence gross domestic investment here is taken to be fixed investment, while the statistical discrepancy (which is assumed to comprise measurement errors in consumption) is included in gross

(continued...)

Table 26. Czech Republic: Savings and Investment Balances, 1993-97

	1993	1994	1995	1996	1997 Est.
	(In percent of nominal GDP)				
Foreign savings 1/	-1.5	1.9	3.5	7.6	6.3
Gross national savings 2/	29.5	27.4	29.0	25.4	23.9
Gross domestic savings 3/	29.6	27.2	28.1	26.0	24.9
Government	4.3	3.5	2.9	3.5	1.2
Nongovernment	25.2	23.6	25.2	22.5	23.7
Gross domestic investment	28.0	29.3	32.5	33.0	30.2
Government	3.8	4.7	4.7	4.6	3.3
Nongovernment	24.2	24.6	27.8	28.4	27.0
Memorandum item:					
General government deficit	0.5	-1.2	-1.8	-1.2	-2.1

Sources: Data provided by Czech Statistical Office; and Fund staff estimates.
1/ External current account deficit (+). A small discrepancy between the national accounts and the balance of payments occurred in 1995.
2/ Equal to gross domestic investment (excluding statistical discrepancy) minus foreign savings.
3/ Equal to gross national savings minus net factor income and transfers from abroad.

- The rising investment ratio largely reflected transition-related infrastructural and environmental investment. Fixed investment in manufacturing was somewhat sluggish and its share in total investment fell from 27 percent (1992-94 average) to 21½ percent in 1995. Of the 5 percentage point increase in overall investment to GDP ratio, only 1 percentage point was attributable to government investment (which had been stable at 4.7 percent in every year between 1994 and 1997), and the remainder resulted from the steady increase in private investment. The budget cuts announced in

[101](...continued)
national savings.

April-May 1997 are expected to lower government investment by 1¼ percentage points to 3¼ percent of GDP, while tight monetary policy accompanied by the slowdown in activity is expected to lower private investment by 1½ percentage points to 27 percent.[102]

- Developments in national savings were largely driven by the private sector; the government traditionally ran a conservative fiscal policy, maintaining government saving at 3–3½ percent of GDP during 1994-96. The sharp increases in real wages during 1994-96 gradually eroded enterprise savings and fueled consumer spending on the expectation that these gains would sustained.[103] Estimates for 1997 indicate that government savings fell to 1¼ percent of GDP, consistent with the slowdown in the economy, while private savings increased to 23.7 percent of GDP, below the peak of 25.2 percent, reached in 1993 and 1995.

External Financing

145. The level and composition of net capital inflows has changed significantly since 1993 (Figure 38). Strong confidence in the value of the currency, together with a relatively large domestic-foreign interest rate differential, attracted increasing (debt and nondebt) capital inflows, amounting to 16 percent of GDP in 1995 alone. The subsequent decline in the attractiveness of the koruna—owing both to the large current account deficit and the increased flexibility of the koruna (following the adoption of wider margins in February 1996 and of a managed float in May 1997)—contributed to a large decline in net capital inflows to 6 percent of GDP in 1996 and even less in 1997. Since 1996, the financing of the current account has necessitated a drawdown in official reserves (Figure 12, in Chapter IV), albeit from high levels.

- Net nondebt capital inflows have averaged 3–3½ percent of GDP per year since 1993, barring the peak of 6¾ percent in 1995 (Table 27). The greater part of these inflows is accounted for by foreign direct investment, which rose from 1½–2 percent of GDP in 1993-94 to 5 percent in 1995—when a large stake in SPT Telecom was sold to foreign investors,[104] before being halved to 2½ percent in 1996. FDI is estimated to

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[102]Industry accounts for about 30 percent of GDP in the Czech Republic. By comparison, industry accounts for 25 percent of investment (27 percent of GDP) in Poland, and 27 percent of investment (31½ percent of GDP) in Hungary.

[103]Developments in total employment, average nominal wages and nominal GDP would suggest that the labor share in output has risen at the expense of capital.

[104]The Telecom sale raised US$1½ billion (3 percent of GDP) providing a one time boost to foreign direct investment.

have fallen further in 1997, to about 2 percent. Portfolio equity inflows oscillated from year to year, also reflecting progress in privatization and, more recently, declining foreign investor confidence. Equity inflows reached about 1¾ percent of GDP in 1993 and 1995, and about 1 percent in 1994, 1996, and 1997.

Table 27. Czech Republic: Capital Account, 1993-97

	1993	1994	1995	1996	1997 Q1-Q3
	(Share in GDP, in percent)				
Non-debt-creating inflows	3.4	3.0	6.8	3.5	2.7
Direct investment (net)	1.6	1.9	5.0	2.5	2.2
Equity (Portfolio)	1.8	1.1	1.8	1.0	0.5
Debt-creating inflows	3.8	5.5	9.5	4.2	1.2
Medium- and long-term capital (net)	2.4	2.8	6.7	5.5	2.3
Bonds (Portfolio)	1.3	1.0	0.9	0.3	1.1
Short-term capital (net)	0.2	1.7	1.9	-1.6	-2.2
Capital account	7.1	8.5	16.3	7.6	3.8
Errors and omissions	0.2	-0.6	1.2	-1.5	1.4
Overall balance	8.8	6.0	14.8	-1.5	-1.5
	(In millions of U.S. dollars)				
Memorandum item:					
Capital account	2,458	3,371	8,226	4,297	1,460

Source: Czech National Bank.

- While the exchange rate was fixed, and the interest differential with abroad was rather high, borrowers had an incentive to raise funds from abroad (Figure 19, in Chapter IV). Inflows of medium- and long-term (MLT) capital also peaked in 1995, rising from around 2½ percent of GDP in 1993-94 to 6¾ percent.[105] A leveling in net MLT inflows occurred in 1996, although this represented a fall of 1¼ percentage points of GDP. Data on the stock of external debt indicate that the increase in borrowing came from commercial banks and corporations, while the government was reducing its external debt. In order to better gauge the nature of the borrower and the maturity of the loans, illustrative data on loan commitments from abroad confirm that

[105]The Czech Republic accepted the IMF's Article VIII and OECD conditions for the liberalization of current payments and capital flows in 1995.

in 1995-96 the banks were the largest borrowers from abroad (most often at maturities of 1–5 years), followed by the utilities/local authorities/private finance companies (Table 28).[106] In the new exchange rate environment post-May 1997, and with interest rate spreads increasing across emerging markets, MLT borrowing was more than halved from 1996 levels—to 2¼ percent of GDP (1997 Q1-Q3)—notwithstanding continued activity in the offshore market (see Box 3).

- Since 1996 there has been a net outflow of short-term capital, prompted by policy measures to discourage short-term capital inflows and the widening of the exchange rate band in February 1996. The short-term net capital outflow in 1996 amounted to 1½ percent of GDP (approximately US$1 billion). The outflow continued at a slightly higher level in 1997 (2 percent of GDP) following turbulence in the foreign exchange market.[107]

- Capital inflows were insufficient to cover the current account deficit in 1996 and Q1–Q3 1997—in part because the CNB chose not to intervene in the foreign exchange market to prevent an appreciation of the koruna through early 1997—and official reserves were drawn down by 1½ percentage points of GDP in each period. By end-September 1997 reserve cover had fallen to about 5 months of merchandize imports (when official reserves were close to US$11 billion), from a peak of 6.7 months as end-1995 (when official reserves almost US$14 billion). By end-December 1997, preliminary official reserves figures indicated a further decline to US$9¾ billion, or 4½ months of estimated imports.

146. The Czech Republic's positive net foreign asset position has gradually eroded, declining from US$8 billion at end-1993 (23 percent of GDP) to US$4.4 billion at end-September 1997 (8½ percent of GDP). Meanwhile, the stock of debt (in convertible currencies) rose from 24.7 percent of GDP (US$8½ billion) to 40.3 percent of GDP (US$21 billion) between end-1993 and end-September 1997; the maturity structure remained broadly unchanged, with the share of short-term debt remaining at around 28 percent.

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[106]There are discrepancies between the commitments data and the data on medium- and long-term capital inflows from the balance of payments (reported as a memo item), since the balance of payments flows include other forms of debt financing (e.g., suppliers' credits) and refer to actual disbursements.

[107]The balance of payments reports short-term capital on a net basis. Banking system returns indicate that the commercial banks' short-term net foreign asset position has improved markedly in the period following the currency crisis.

Box 3: Eurokoruna Bonds

A growing offshore market for Eurokoruna bonds has facilitated bank and enterprise borrowing, as issuers on-lent koruna receipts in the Czech Republic directly or London swap houses placed koruna receipts in Czech bonds earning a higher rate of interest. From the inception of the Eurokoruna bond market in September 1995 to end-1997, about US$4 billion was raised by issuers in the offshore market. The largest volume of issues was recorded in Q1 1997, and reached US$1.7 billion.[1] Issuers have primarily been German commercial banks, which have on-lent the koruny through subsidiaries in the Czech Republic (allowing Czech entities to refinance their external liabilities in domestic currency), and supranational and sovereign issuers, which have used their strong credit rating to swap koruna receipts into other currencies at lower cost. London swap houses, which have entered as the counter- parties to such transactions have, reportedly, often placed the koruna receipts in Czech bonds in order to hedge their obligations. Both types of transactions should facilitate borrowing from abroad, and although they may not be fully reflected in the balance of payments, they do impact on the spot exchange rate.

[1]By comparison, at end-September 1997 the total issue to date of Euroforints and Eurozlotys had reached US$363 million and US$614 million, respectively.

Table 28. Czech Republic: Loan Commitments from Abroad

(In millions of U.S. dollars)

	1993	1994	1995	1996	1997 Jan.-Sept.
Borrower:					
Czech National Bank	267	--	--	--	2,000
Commercial Banks	39	--	675	903	149
Private corporations	91	278	341	539	394
Other 1/	16	566	591	1,731	--
Total	412	843	1,607	3,173	2,543
Of which: 1-5 years maturity	239	10	1,207	2,207	2,149
Memo item:					
Inflow of medium- and long-term borrowing (net) 2/	816	1,109	3,367	3,110	890

Source: Capital Data, Czech National Bank.

1/ Includes local authorities' public corporations, utilities, and private finance companies.

2/ As reported in the balance of payments.

B. Vulnerability of the External Position

147. The events leading up to the May 1997 currency crisis reveal the extent to which the Czech Republic's external position had become vulnerable to a change in investor confidence, as the market judged that the prevailing exchange rate was not likely to be sustainable, in the light of deteriorating fundamentals (a large current account deficit combined with weak output and export performance) and perceived political constraints to a further tightening of policies. Confidence in the exchange rate was shaken when the Czech National Bank came under pressure to loosen monetary policy as activity slowed, while the government's first package of fiscal and structural measures (in mid-April) was considered to be inadequate by the markets—to the extent that a widening fiscal deficit was not consistent with a narrowing in the current account deficit and the preservation of the exchange rate peg. Contagion from Southeast Asia helped trigger the speculative attack: Investors perceived that there were certain parallels with Thailand, where the crisis was preceded by a period of political uncertainty and differences between the government and the central bank over the conduct of policies were aired in public. However, in contrast with the experiences in Mexico in 1994-95 and in Southeast Asia in 1997, the crisis in the Czech Republic did not appear to have any elements of a *banking* or *debt* crisis: There was no evidence of diminished public confidence in the banking system such as deposit withdrawals (other than a limited shift from koruna to foreign-currency-denominated deposits), and the Czech Republic's investment grade sovereign credit rating was confirmed soon after the crisis by the CNB's ability to borrow from abroad on favorable terms.

148. Indicators of external vulnerability are in some respects better for the Czech Republic than they were for Mexico and countries in Southeast Asia before they experienced serious financial difficulties, and broadly comparable to those for neighboring transition economies (Table 29).[108] The current account deficit of the Czech Republic was still unsustainably large in 1997, at 6–6½ percent of GDP, though it is targeted to decline over the medium term. According to a simple rule of thumb, the maximum sustainable current account deficit of the Czech Republic is about 2½–3 percent of GDP (on the assumption that the ratio of external debt to GDP does not exceed 40 percent, and that annual nominal dollar GDP rises by 6–8 percent).[109] However, the maximum could be somewhat higher to the extent that the Czech Republic can rely on nondebt capital inflows (likely to amount to about 1½–2 percent of GDP over the medium term). The level of investment in the Czech Republic is high relative to comparator transition economies (Hungary and Poland) as well as Mexico in 1993. But as the recent Southeast Asian experience shows, where investment rates exceeding 40 percent are common, this is not necessarily a reliable indicator of sustainability. The distinction between public and private savings postulated by the "Lawson doctrine" (which

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[108]Recent cross-country studies include Milesi-Ferretti and Razin (1997); Goldstein (1996); Frankel and Rose (1996) and Kaminsky et al (1997).

[109]Williamson (1996) provides a theoretical underpinning for this.

Table 29. Indicators of External Vulnerability

	Czech Republic		Hungary		Poland		Thailand		Mexico	
	1996	1997	1996	1997	1996	1997	1996	1997	1993	1994
Real GDP growth rate	4.1	1.2	1.3	3.8	6.1	6.8	6.4	0.6	0.6	4.4
Gross domestic investment, in percent of GDP	33.0	30.7	20.3	22.1	20.2	22.2	41.0	35.8	21.0	21.7
General government balance, in percent of GDP	-1.2	-2.1	-4.9	-4.9	-2.0	-1.8	2.7	-1.5	0.3	-0.3
General government debt, in percent of GDP	10.2	10.9 1/	72.1	64.2	49.4	49.0	4.6	4.5	25.3	29.4
Merchandize exports volume growth	0.0	13.9	4.5	20.0	9.8	20.2	-1.0	6.3	13.6	12.4
Merchandize imports volume growth	11.1	6.0	6.5	18.0	32.3	25.7	1.7	-5.3	3.0	19.4
Current account balance, in percent of GDP	-7.6	-6.3	-3.8	-3.3	-1.0	-3.5	-7.8	-3.9	-5.8	-7.0
Foreign direct investment, in percent of GDP	2.5	1.8	4.5	4.9	2.0	2.0	1.4	1.6	1.1	2.6
Portfolio investment, in percent of GDP	1.3	0.6	-2.0	-1.6	0.1	2.3	0.6	1.4	4.2	1.5
Gross official reserves, US$ billion	12.4	9.7	9.8	9.3	18.0	21.5	38.7	27.0	25.3	6.4
In months of merchandize imports	5.4	4.4	5.4	5.2	6.0	6.8	6.6	5.0	6.2	1.3
In percent of broad money	30.6	28.0	48.1	44.3	38.3	43.6	24.0	...	20.4	7.2
Gross total external debt, US$ billion	21.2	22.4	27.6	26.6	40.6	...	90.5	96.0	127.5	136.5
In percent of GDP	37.7	43.1	61.6	61.8	30.2	...	48.9	59.3	31.6	32.4
In percent of exports	97.6	101.1	194.4	142.2	166.3	...	119.6	122.9	360.2	337.9
Gross short-term external debt, US$ billion 2/	6.0	7.3	3.4	3.5	3.0	...	37.6	30.2	60.4	67.4
In percent of gross total external debt	28.3	32.6	12.3	13.2	7.4	...	41.5	31.5	47.4	49.4
In percent of official reserves	48.4	75.3	34.7	37.6	16.7	...	97.2	111.9	238.7	1053.1
In percent of banking system reserves	34.3	42.2	29.8	...	12.5	...	82.3	...	193.4	554.9
Gross short-term external debt, US$ billion 3/	4.7	...	4.6	...	2.5	...	45.7	...	26.1	33.1
In percent of gross total external debt	22.4	...	16.6	...	6.2	...	50.5	...	20.5	24.3
In percent of official reserves	38.3	...	46.7	...	14.0	...	118.1	...	103.2	518.0
In percent of banking system reserves	27.1	...	40.1	...	10.5	...	100.0	...	83.6	272.9
Debt service ratio (in percent of exports)	14.8	15.5	25.8	28.0	7.8	...	11.4	15.4	50.2	53.8
REER appreciation (ULC-based, period average)	4.5	2.4	0.0	1.0 3/	5.0	...	5.4	-24.1 4/	7.5	-3.8
Sovereign rating (Standard and Poor's)		A		BBB-		BBB-		BBB		BB+

Source: Fund staff estimates, Recent Economic Developments, Bank for International Settlements.

1/ Central Government Debt.

2/ Official data.

3/ BIS data.

4/ CPI based.

considers private sector dissaving to be "benign" since disequilibria, in an efficient market, will be corrected through changes in interest rates) proved to be of limited predictive value, given that the private sector was primarily responsible for the observed dissaving in the Czech Republic—as it had been in Mexico.

149. The crises in Mexico and Southeast Asia have highlighted the importance of the level and composition of external liabilities in assessing the sustainability of current account deficits and the country's ability to withstand shocks. Unlike these economies however, the Czech Republic has relied on a broad base of both debt and non-debt financing, and the share of short-term debt in total debt is moderate. The stock of gross external debt reached the widely accepted prudential limit of 40 percent of GDP by 1997 Q3, but was still relatively low when measured against exports of goods (at around 100 percent—where the commonly applied threshold is 200-220 percent) and exports of goods and services (at 73 percent) (Table 30, and Table A41, SM/98/30, Sup.1).[110] Short-term debt has also been kept to within manageable bounds, and was equivalent to about three fourths of official foreign reserves and 40 percent of banking system foreign reserves at end-1997. From a comparative perspective, debt ratios in the Czech Republic are somewhat below Mexico and Thailand (particularly for short-term debt). The Czech Republic is also relatively well placed when compared with larger transition economies—since the country avoided foreign debt during the 1980s. This has helped the debt service position: Total debt service (in convertible currencies) remained at 15-16 percent of exports in 1996-97, without any evident bunching of maturities (Table A42, SM/98/30, Sup.1). Debt service was a little above that in Thailand but considerably below Mexico's.[111]

150. The integration of the Czech Republic with international financial markets makes it more sensitive to changes in market sentiment. The Czech Republic moved quickly to integrate with international financial markets in 1995, when it acceded to the IMF Article VIII requirements for current account convertibility and the OECD codes on capital liberalization. By April 1997, global turnover in the Czech koruna was more than ten times greater than in other Central European transition economies, and not much less than the Thai baht, despite the much larger size of the Thai economy (Table 31). This reflects active onshore and offshore trading in koruna securities.

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[110]The shares of enterprise and commercial bank debt in total debt increased by 5 percentage points during 1995-97, to 35 percent and 25 percent respectively; while that of the government halved to around 6 percent.

[111]Official figures showing the currency composition of external debt do not exist. It is believed, however, that the currency composition broadly mirrors export receivables, which should not pose additional servicing risks. Data for the Czech Republic in the World Bank's *Global Development Finance* report (1997) generally confirm this.

Table 30. Czech Republic: External Debt Indicators, 1993-97

	1993	1994	1995	1996	1997
	(As a percentage of GDP)				
Total	27.9	30.8	34.1	37.7	40.9
Medium- and long-term	21.2	21.8	23.6	27.0	29.2
Short-term	6.7	9.0	10.5	10.7	11.7
	(As a percentage of exports of goods and services)				
Total	50.8	57.8	61.0	70.8	72.7
Medium- and long-term	38.5	40.9	42.2	50.7	52.0
Short-term	12.3	16.9	18.8	20.2	20.8
	(As a percentage of GDP)				
Memorandum item:					
Thailand (total debt)	41.7	45.3	49.6	48.8	59.3
Mexico (total debt)	31.6	32.4	58.0	47.1	...

Sources: Czech National Bank; and staff estimates, and reports on Recent Economic Developments for Thailand and Mexico.

C. Conclusion

151. The current account has progressed through three phases since 1993: from a period of surplus/sustainable external deficits during 1993-95; to a period when the deficit was unsustainable, which resulted in a currency crisis in April-May 1997; followed by a gradual return toward sustainability, as policies have been tightened and the exchange rate has been allowed to depreciate. The deficit became unsustainable once it had become apparent that the prevailing policy configuration had left exports increasingly uncompetitive, not least because sizable real wage increases had raised unit labor costs while fueling demand for imports. After the stock adjustment in foreign investment in 1995, investors' demand for koruna-denominated assets waned. A rapid downturn in investor confidence took place as the economic fundamentals weakened, and questions arose about the authorities' resolve to pursue prudent fiscal policies and deliver on promised structural reforms. It was precisely at this time that the international environment toughened markedly, in light of developments in Southeast Asia. As a result, the authorities were obliged to float the exchange rate in May 1997. The tide appears to have turned for the current account deficit, following the tightening of fiscal policies in April-May and renewed efforts by the authorities to further contain the fiscal deficit, improve wage discipline in the public sector, and accelerate capital market reform. But as long as the deficit is large, and capital flows to emerging economies are subject to fads and fashions, the economy will remain exposed and fragile.

Table 31. Foreign Exchange Turnover in Emerging Market Currencies, 1995-97

(In billions of U.S. dollars)

Currencies	Local turnover 1/		Global turnover	
	April 1995 2/	April 1996 2/	March 1996	April 1997
Thai baht	2.6 3/	4.0 3/	5.0	14.0
Argentine peso	1.7	2.0	n.a.	1.5
New Mexican peso	2.1	2.2	1.2	n.a.
Czech koruna	0.6 3/	2.5 3/	0.5	5.5
Hungarian forint	0.3	0.6	0.3	0.4
Polish zloty	0.3 3/	n.a.	0.3	0.4
Slovak koruna	0.02	0.2	n.a.	0.4
Total 4/	29.9	41.3	31.1	56.1

Source: BIS (1997).

1/ Estimates as reported by the respective central banks, net of double-counting unless otherwise specified, for a period as near as possible to April. For Thailand, 1995 second half and 1996 annual averages. For Argentina, annual average.

2/ Citibank estimates, net of double-counting.

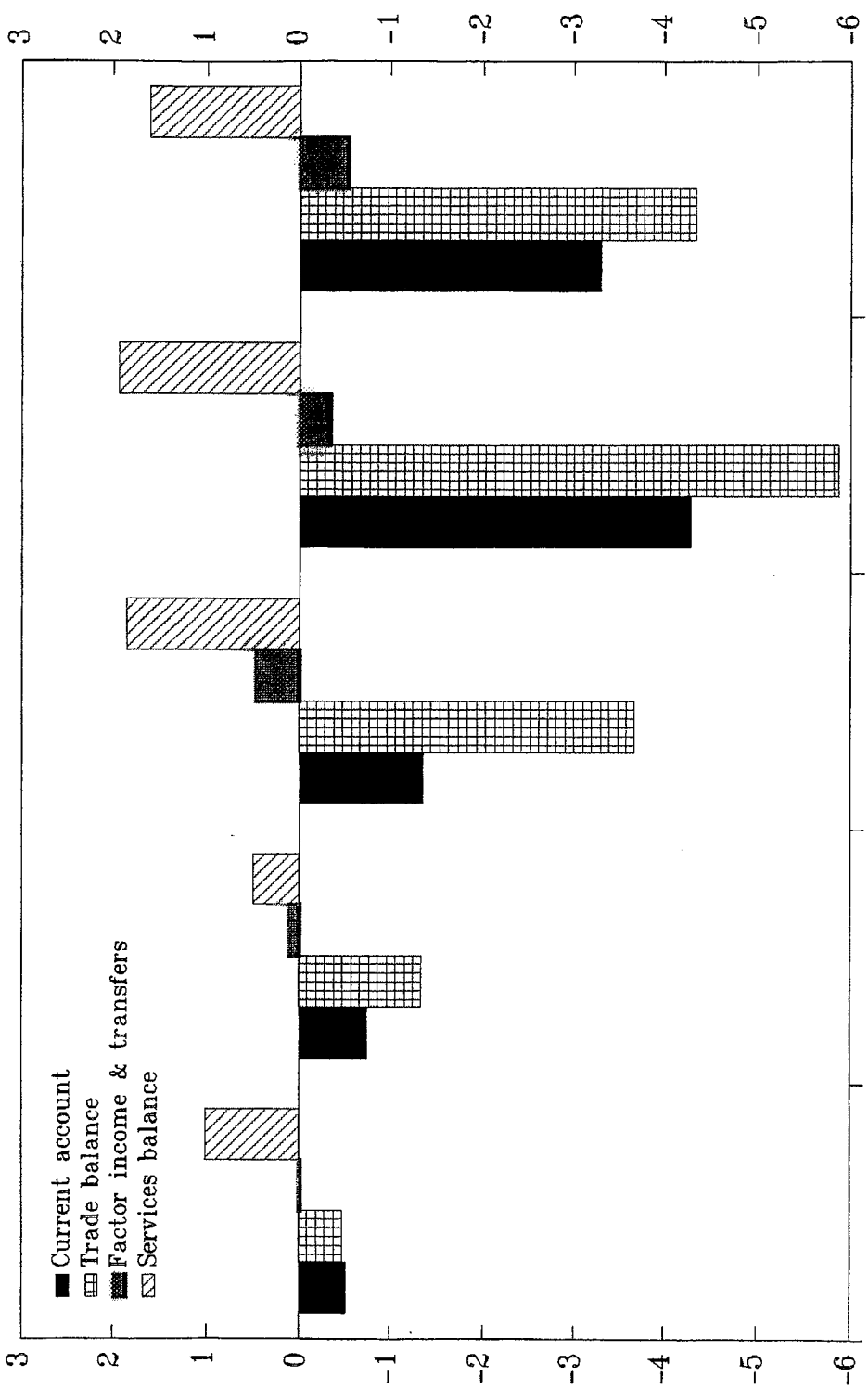
3/ On a gross basis.

4/ The Central Bank Survey of Foreign Exchange and Derivatives Market Activity 1995 reports a grand total (including South Africa) of US$1,136.9 billion.

FIGURE 31
CZECH REPUBLIC

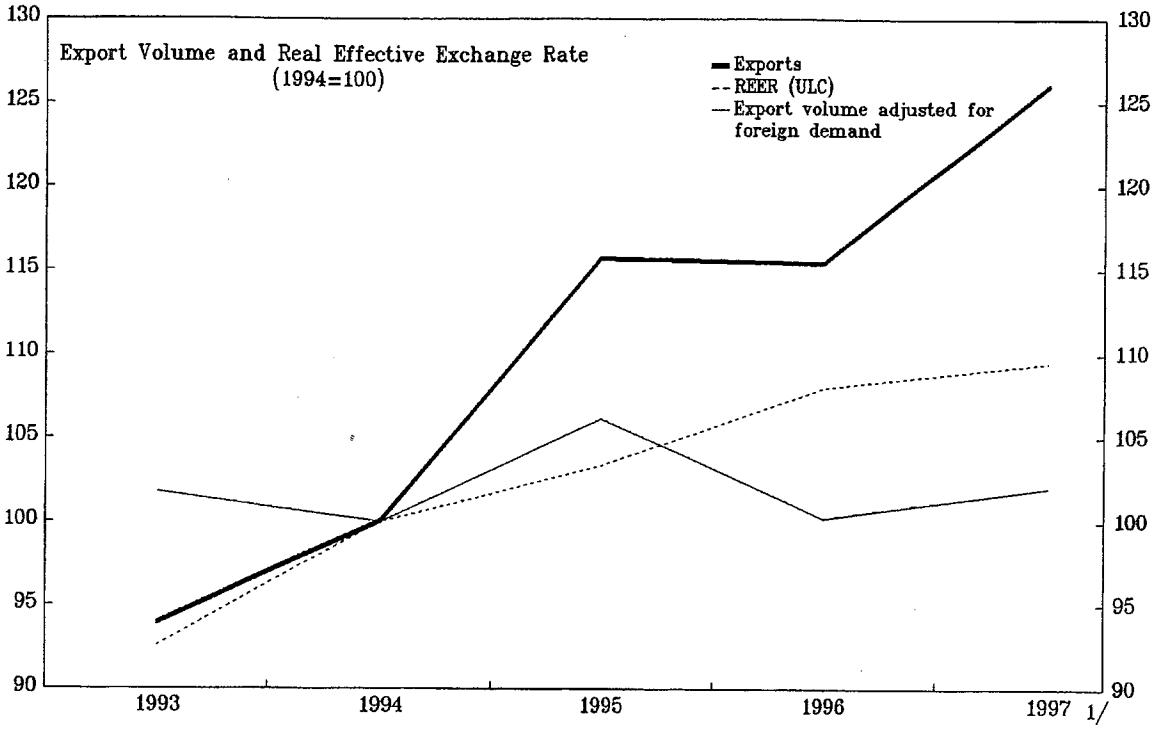
CURRENT ACCOUNT AND ITS COMPONENTS, (1993-97)

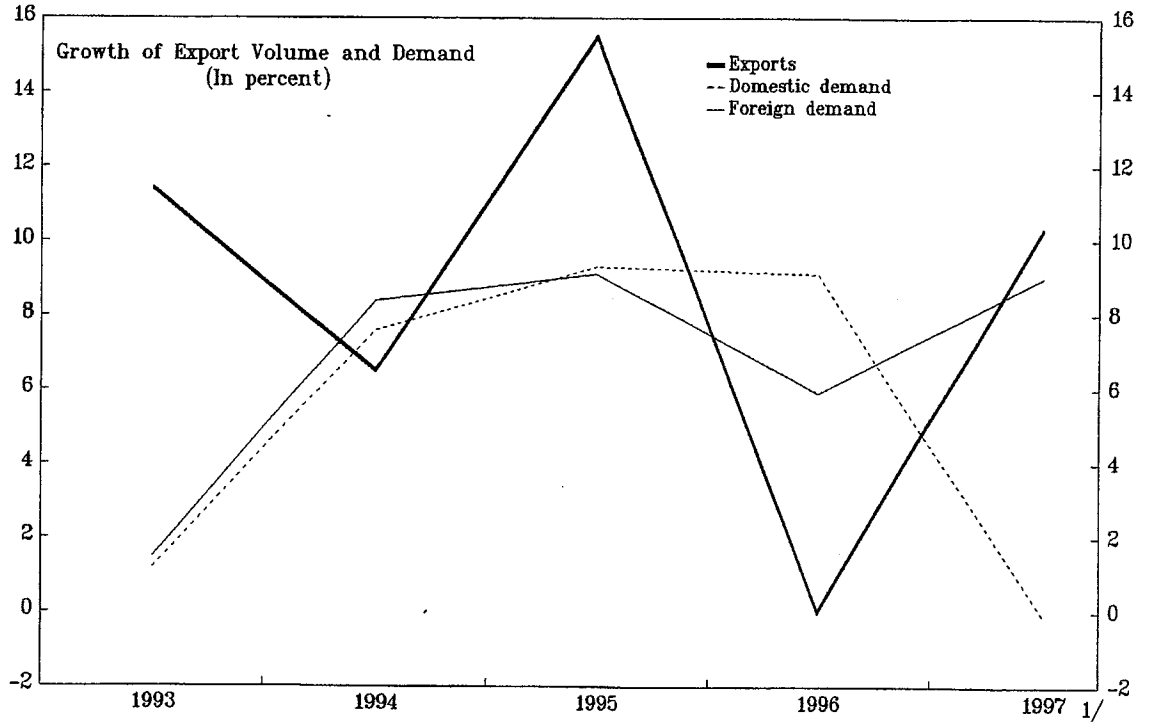
Billions of U.S. Dollars



Sources: Czech National Bank and Fund Staff estimates.

Figure 32
CZECH REPUBLIC
MAJOR DETERMINANTS OF EXPORT VOLUMES

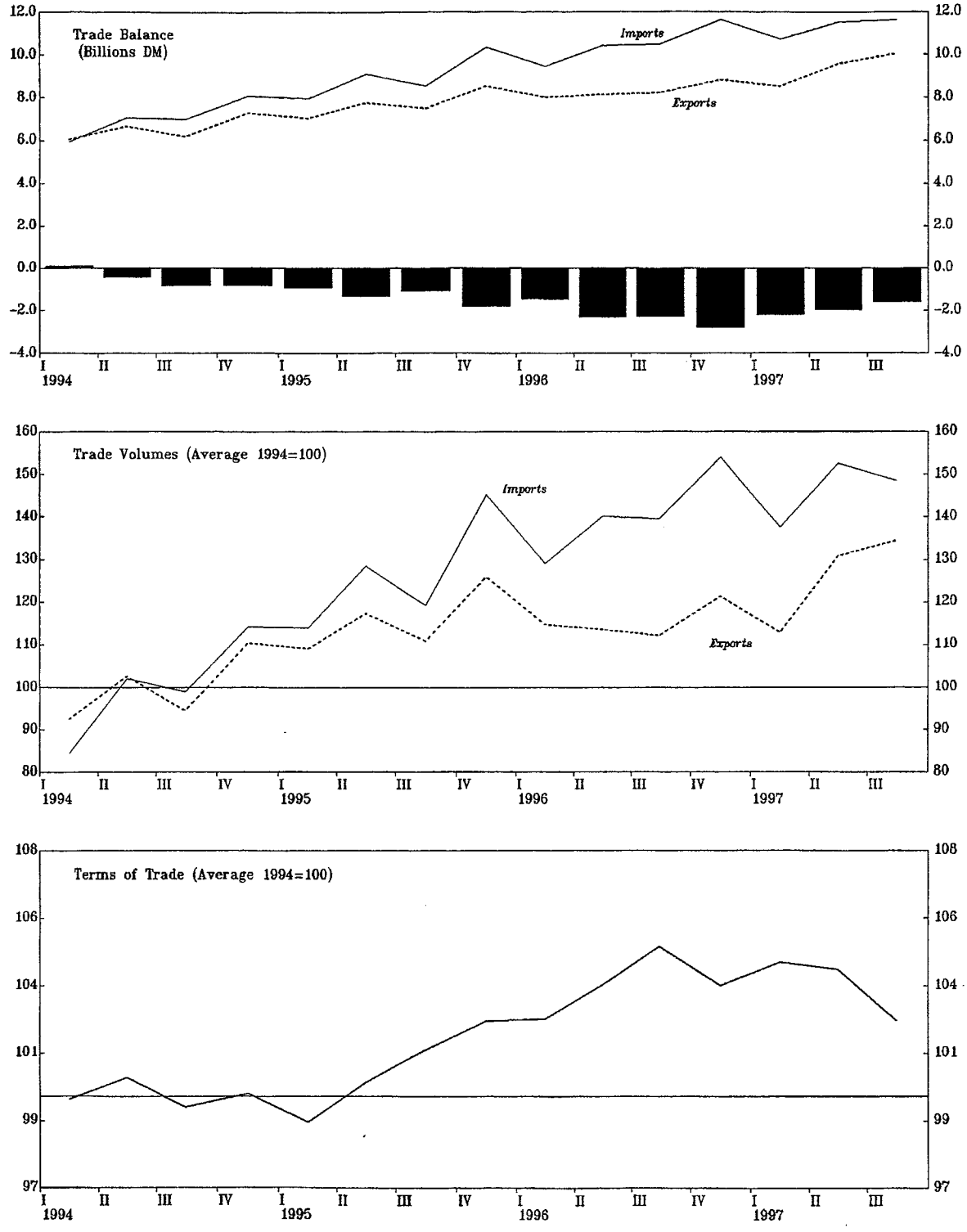




Sources: Czech Statistical Office, WEO, and Fund staff estimates.
1/ 1997q1 through 1997q3.

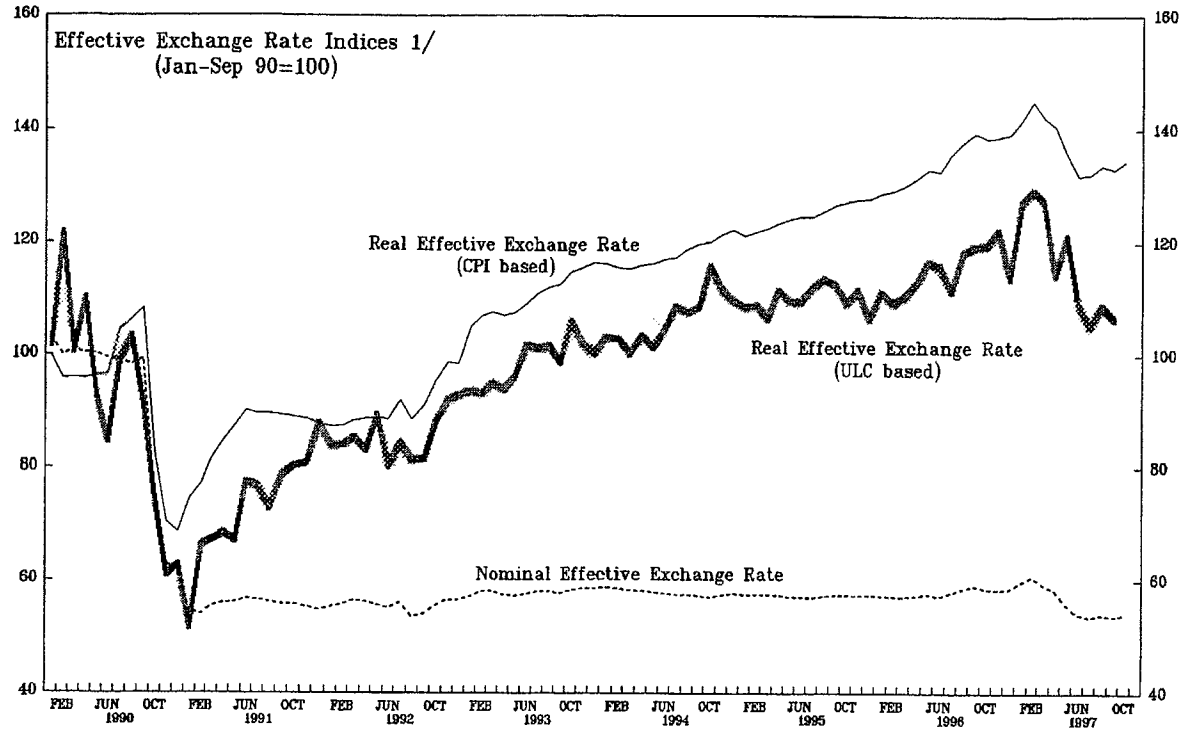
Figure 33
CZECH REPUBLIC

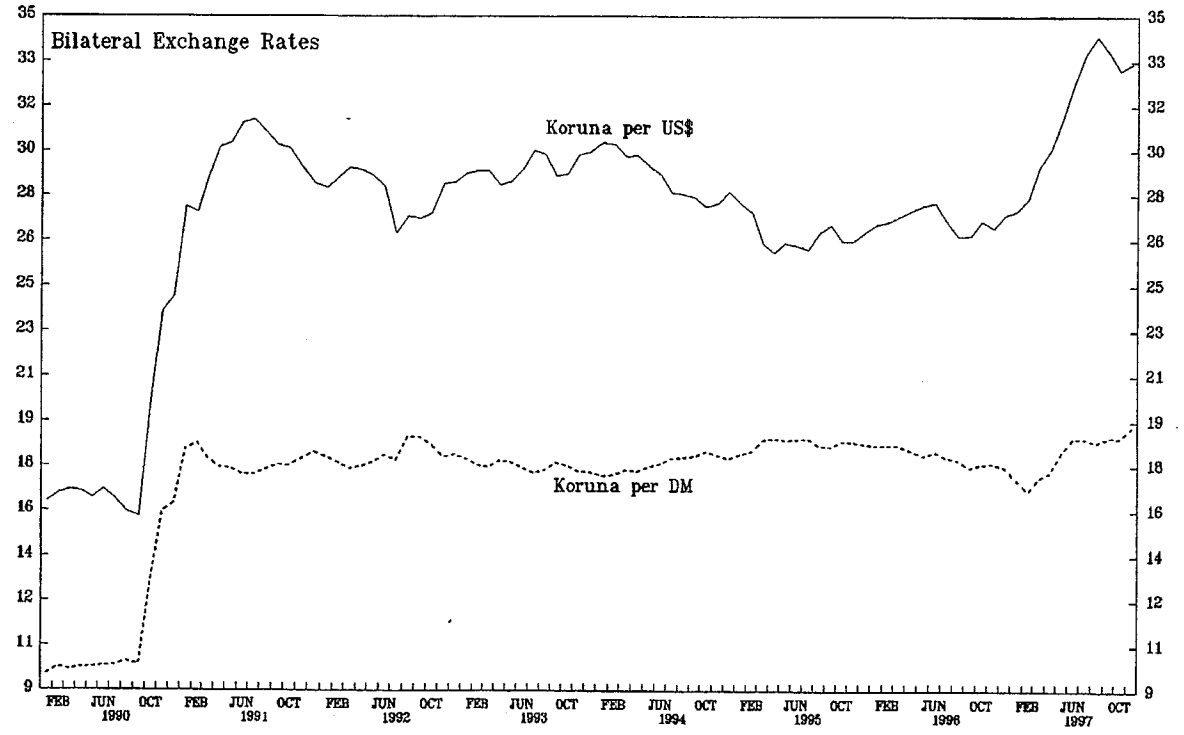
TRADE BALANCE, TRADE VOLUME, AND TERMS OF TRADE



Sources: Czech Statistical Office, Czech National Bank and Fund staff estimates.

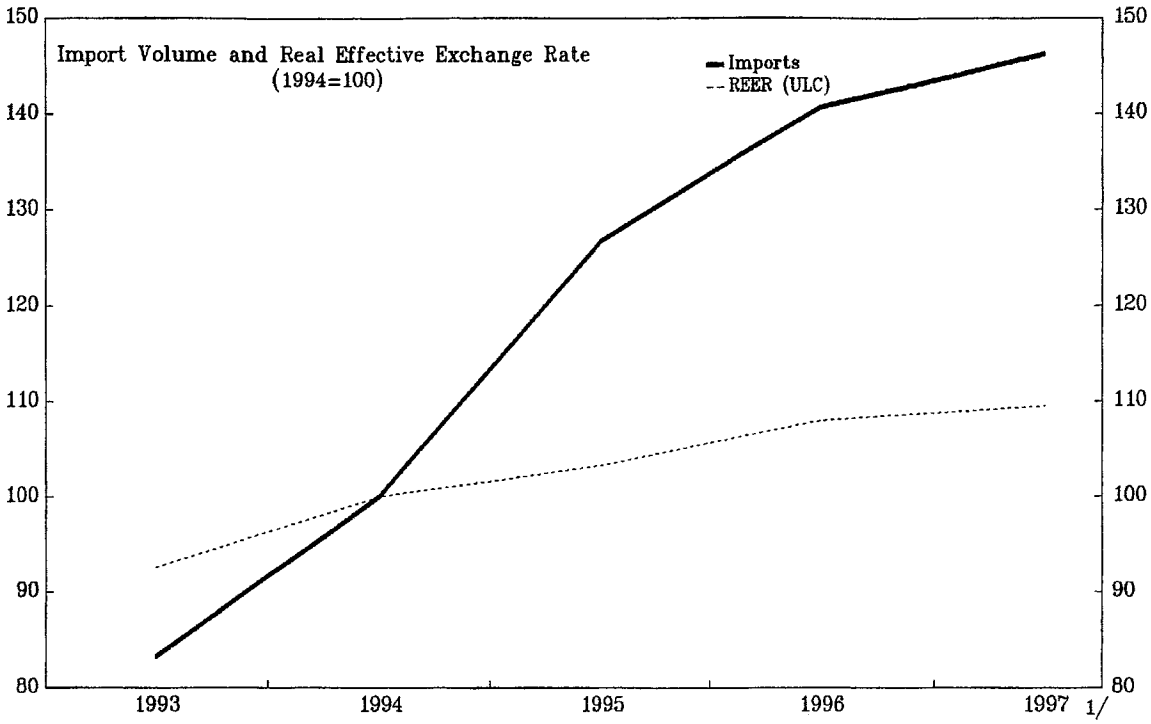
Figure 34
CZECH REPUBLIC
EXCHANGE RATE INDICATORS

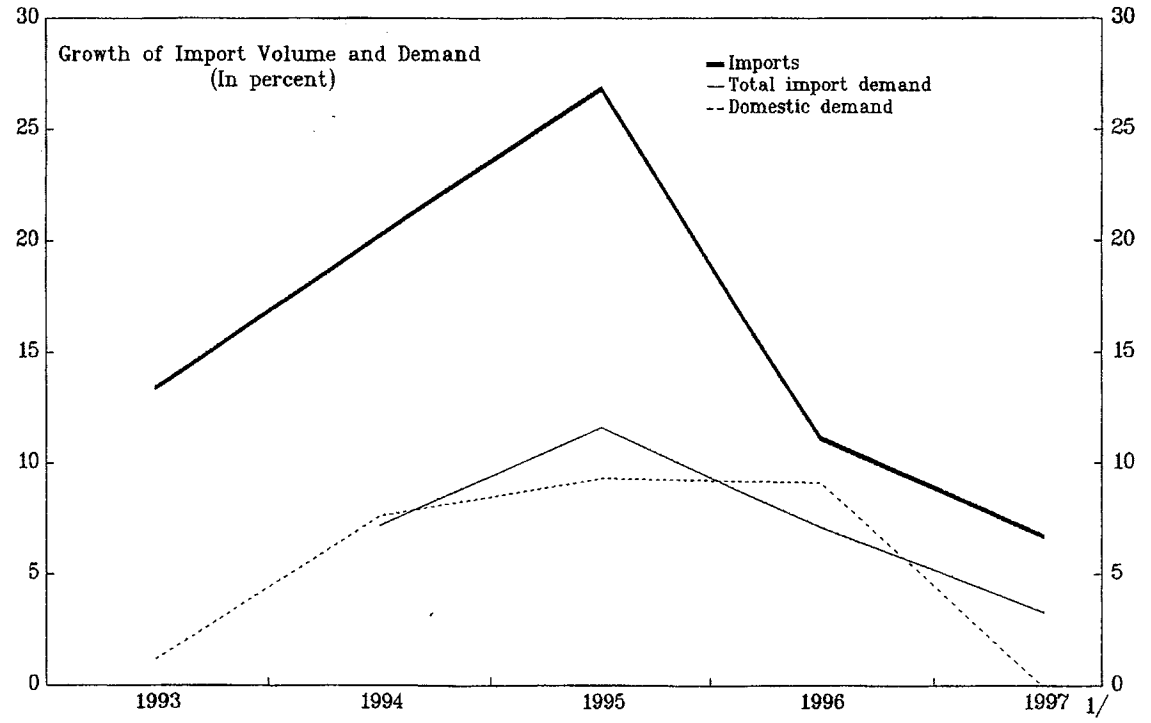




Sources: Czech authorities; IMF, International Financial Statistics; and Fund staff estimates.
1/ An increase denotes real appreciation.

Figure 35
CZECH REPUBLIC
MAJOR DETERMINANTS OF IMPORT VOLUMES



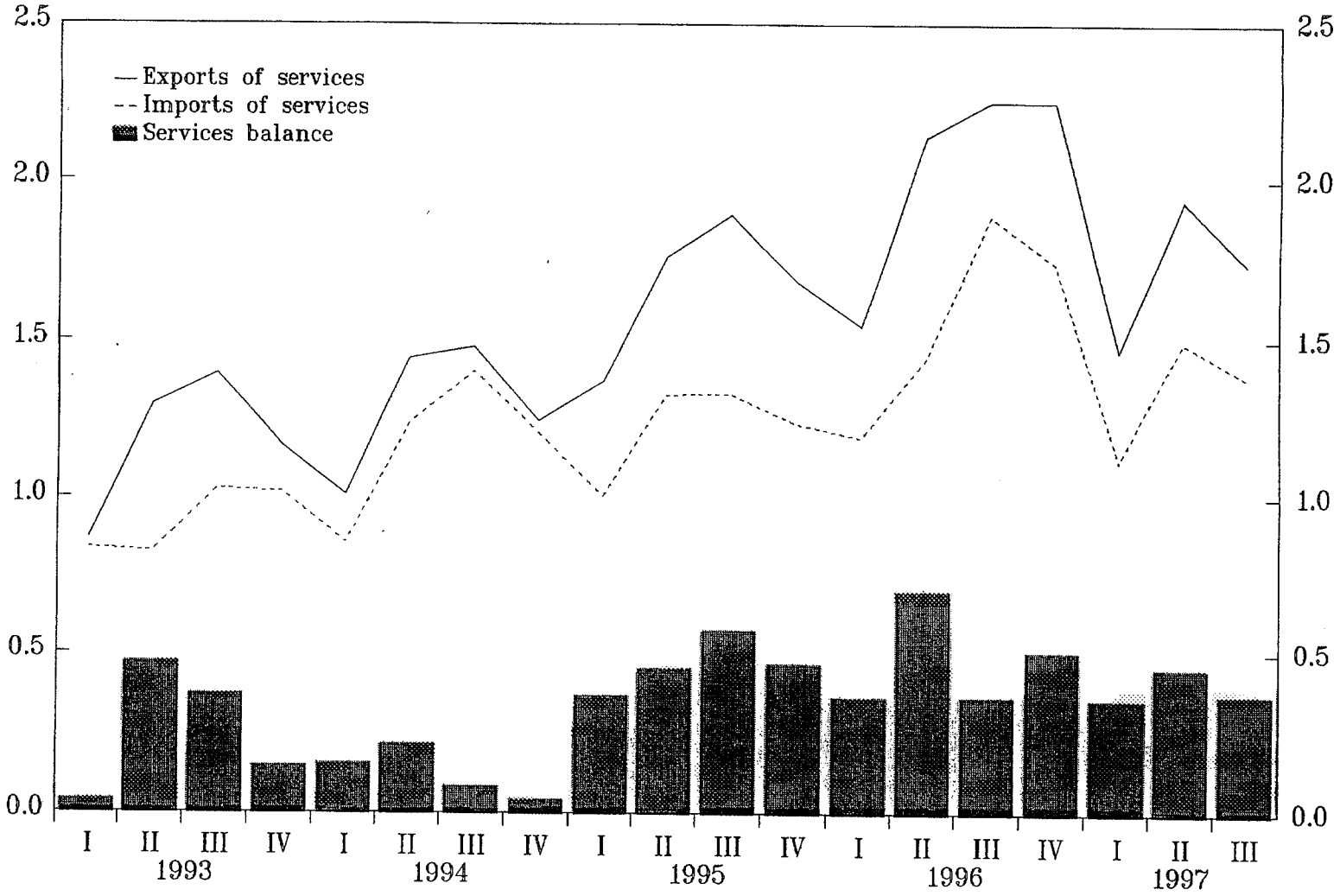


Sources: Czech Statistical Office, WEO, and Fund staff estimates.
1/ 1997q1 through 1997q3.

FIGURE 36
CZECH REPUBLIC

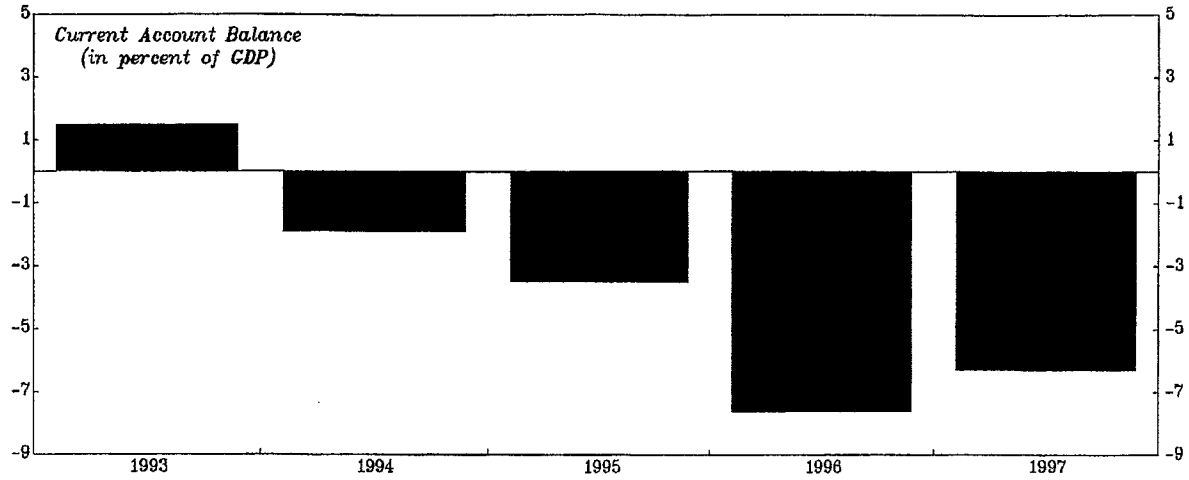
TRADE IN NONFACTOR SERVICES

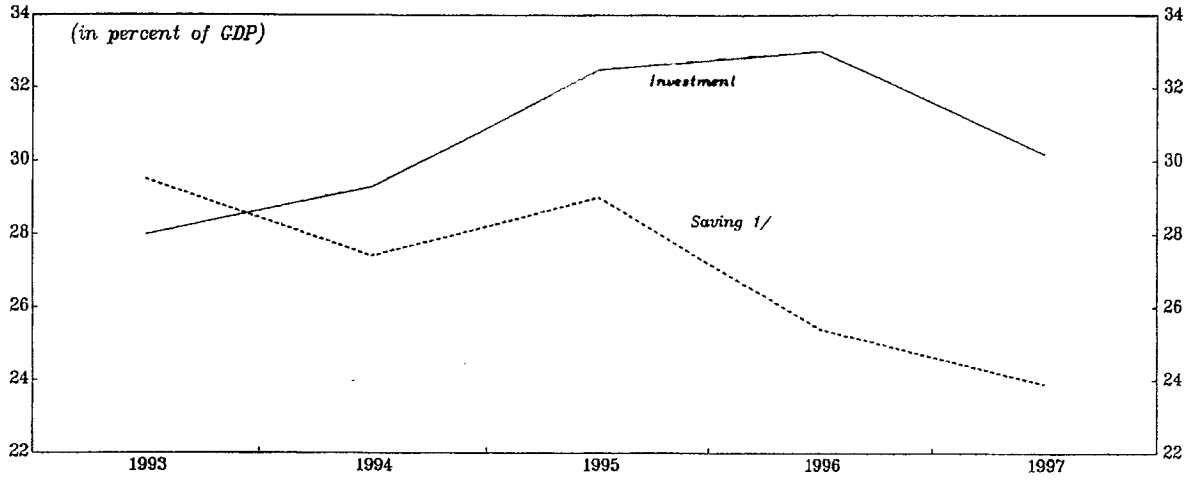
(Billions of U.S. Dollars)

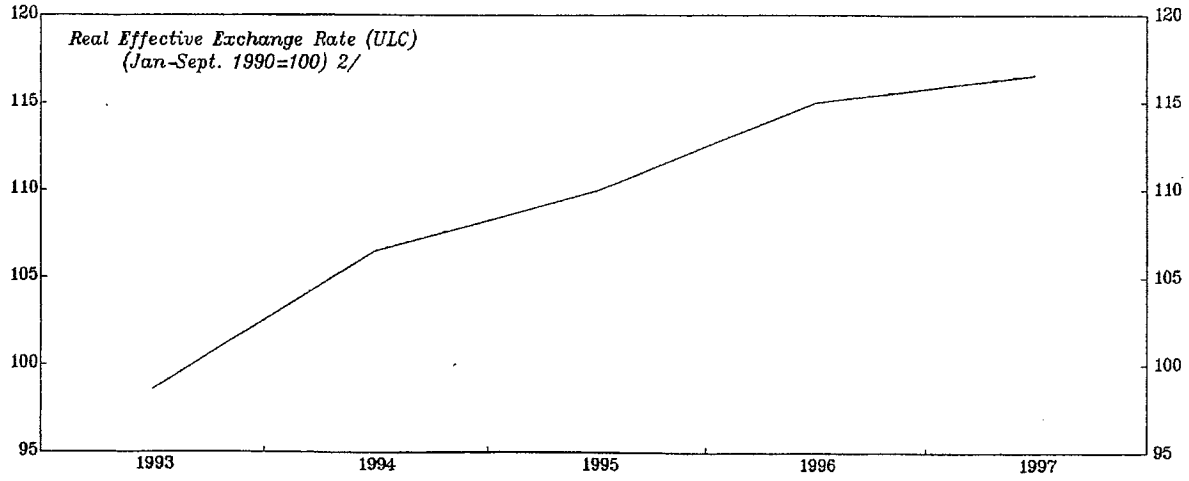


Source: Czech National Bank

Figure 37
CZECH REPUBLIC
CURRENT ACCOUNT AND ITS MAJOR DETERMINANTS

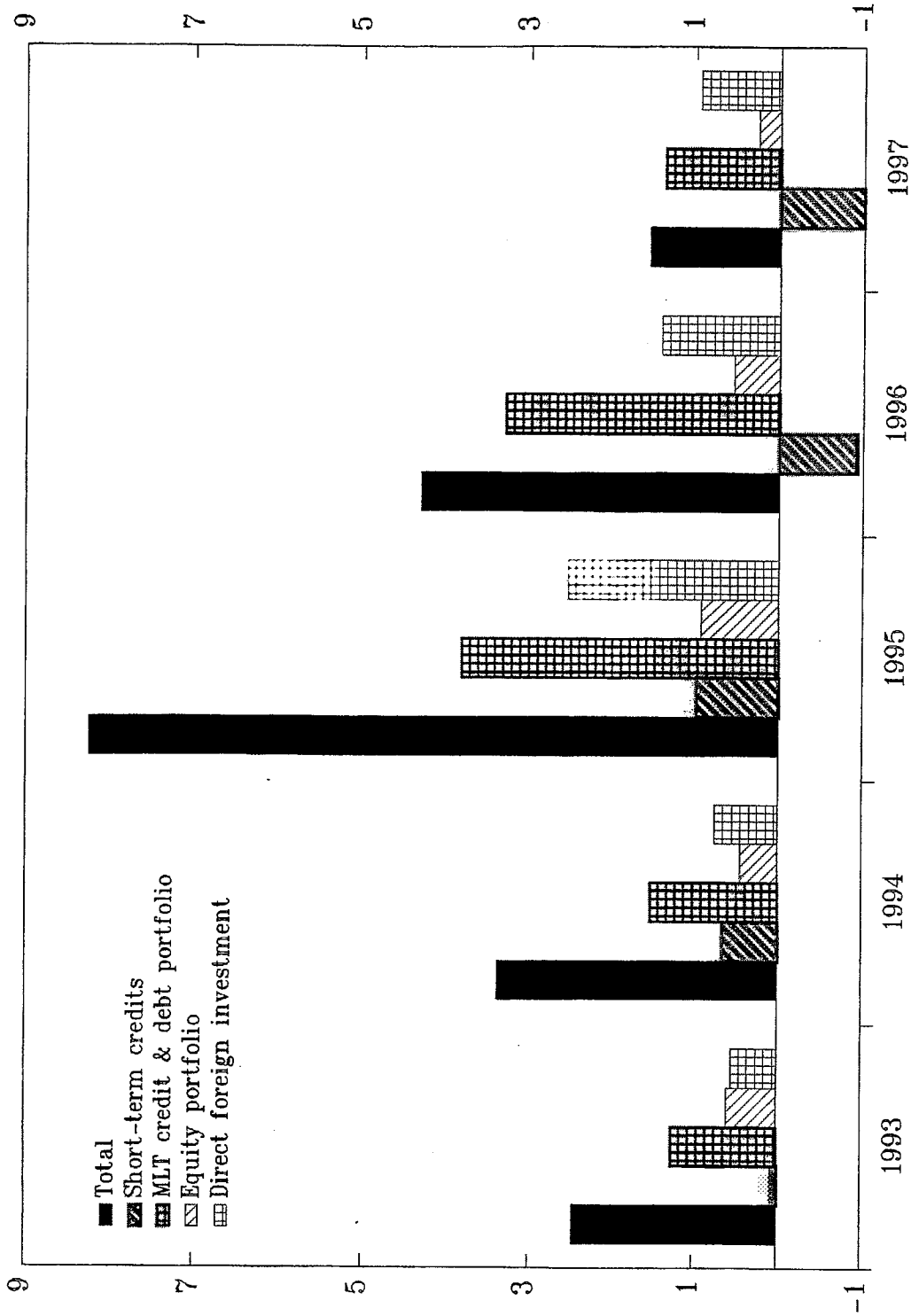






Sources: Czech Statistical Office, National accounts, and Fund staff estimates.
1/ Gross national saving, including statistical discrepency.
2/ Through Sept. 1997.

Figure 38
CZECH REPUBLIC
CAPITAL FLOWS (1993-97)
(Billions of U.S. Dollars)



Sources: Czech National Bank and Fund Staff estimates.

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Analytical Framework for the Study of Inflation

1. Consider the following simple model of a small open economy with two sectors—traded and nontraded goods—and money market clearing, where nominal wages are assumed to be exogenous and the exchange rate is assumed to be floating:[1]

$$\pi = \alpha_1 \pi_{NT} + \alpha_2 \pi_T;\ \pi_T = e + \pi^*, \tag{1}$$

$$y^d_{NT} = -\beta_1[\pi_{NT} - \pi_T] + \beta_2 y;\ 0<\beta_2<1, \tag{2}$$

$$y^s_{NT} = -\delta_1[w - \pi_{NT}] + \delta_2[\pi_{NT} - \pi], \tag{3}$$

$$y^s_{NT} = y^d_{NT}, \tag{4}$$

$$m + v = \pi + y;\ \ v = \mu\pi^e, \tag{5}$$

$$y^s_T = -\lambda_1[w - \pi_T] - \lambda_2[\pi_{NT} - \pi_T], \tag{6}$$

and

$$y = y^s_{NT} + y^s_T, \tag{7}$$

where π denotes domestic inflation, π^e expected inflation, π^* foreign inflation, e the rate of depreciation, w the rate of nominal wage growth, m the rate of nominal money growth, v the change in velocity, y^d_{NT} and y^s_{NT} the change in demand and supply of nontraded goods, y^s_T the change in the supply of traded goods, and y the change in total income. π, π_{NT}, π_T, y^d_{NT}, y^s_{NT}, y^s_T, and y are endogenous, while w, π^e, and m are exogenous.

2. Equation (1) determines inflation as a weighted average of nontraded and traded goods inflation, equations (2)–(4) describe the nontraded goods market, equation (5) is the money market equilibrium, and equations (6)–(7) determine total income.

3. Substituting (1)–(3) and (5) in (4) yields the following semi-reduced form for inflation in terms of notably the rate of depreciation, money, and wage growth:

$$\frac{A}{B}e + \frac{A}{B}\pi^* + \frac{C}{B}m + \frac{C}{B}\mu\pi^e + \frac{D}{B}w, \tag{8}$$

---

[1]This model follows closely that of Coorey et al. (1996) but abstracts from relative price changes.

where

$A = -\alpha_1\beta_1 - \alpha_2(\beta_1+\delta_1+\delta_2) < 0,$
$B = \delta_2(\alpha_1-1) - \alpha_1\beta_2 - \beta_1 - \delta_1 < 0,$
$C = -\alpha_1\beta_2 < 0,$
$D = -\alpha_1\delta_1 < 0,$ and

$d\pi/de > 0;\ d\pi/dm > 0;\ d\pi/dw > 0;\ d\pi/d\pi^e > 0.$

4. Thus, as one would expect in line with the discussion above, inflation depends positively on the rates of depreciation, money growth, and wage growth as well as inflation expectations.

Data Properties and VEC Estimation in Inflation Study

1. The efficient estimation of the vector autoregression (VAR) model requires that the time series be stationary. Table 1 below reports the outcome of Augmented Dickey Fuller and Phillips-Perron tests of the null hypothesis that variables have a unit root (are non-stationary) and shows that—with the exception of core inflation—this cannot be rejected for the variables in levels (annual growth rates). However, first differences appear to be stationary. In principle therefore, one needs to estimate the model in differences rather than levels.

2. It is also necessary to test for any long-run relationship between the variables to ensure that the estimated model makes use of all available information. To the extent that such a relationship exists, the VAR needs to be supplemented with an error correction term that captures the dynamic response to deviations from the long-run equilibrium growth path; otherwise, a VAR in first differences is adequate. The most powerful procedure for testing such a long-run or cointegrating relationship is the Johansen test, which examines the existence of cointegration within the VAR framework and simultaneously determines the number of cointegrating vectors. It is assumed that the series have means and linear trends, but that the cointegrating equations have only intercepts. The test is relatively sensitive to the number of lags included in the VAR model. Estimations of an unrestricted VAR suggest including as many lags as possible (four in this case, given the short data period). The results of the Johansen test are shown in Table 2 below and generally indicate the presence of at least one cointegrating vector.[1] Cointegration also exists between core inflation and subsets of these variables, albeit less robustly so (results not reported).

3. On this basis, a restricted VAR or vector error correction (VEC) model of the following form is estimated:

$$\Delta y_t = A + \sum_{i=1}^{k} B_i \Delta y_{t-i} + \gamma(\alpha+\beta y_{t-1}) + \epsilon_t \qquad (1)$$

where y_t is a vector of variables [π_t, m_t, w_t, and e_t], with π_t denoting core inflation, m_t growth in broad money, w_t, growth in industrial unit labor costs, and e_t, changes in import prices; A and B are vectors (matrices) of coefficients; and $\alpha+\beta y_{t-1}$ denotes the deviation from long-run equilibrium in the previous period (the error correction term). The results are as follows (with t-statistics reported in parenthesis):

---

[1]The inclusion of four lags points to the presence of four cointegrating vectors, but in the analysis below we assume that the rank is one.

$$\pi = -0.02 + 0.47w + 0.32m + 0.38e \quad \text{(Long–run cointegrating relationship)} \quad (2)$$
$$(20.8) \quad (13.5) \quad (9.2)$$

$$\Delta\pi_t = -0.20 + 0.55ECT_{t-1} \quad \text{(Short–run dynamic relationship)} \quad (3)$$
$$(-1.8) \quad (3.1)$$

$$-0.12\Delta\pi_{t-1} - 0.23\Delta\pi_{t-2} + 0.09\Delta\pi_{t-3} - 0.21\Delta\pi_{t-4}$$
$$(-0.39) \qquad (-1.5) \qquad (0.7) \qquad (-1.9)$$

$$+0.25\Delta w_{t-1} - 0.55\Delta w_{t-2} - 0.89\Delta w_{t-3} - 0.01\Delta w_{t-4}$$
$$(1.6) \qquad (-3.7) \qquad (-4.6) \qquad (-0.1)$$

$$+0.65\Delta m_{t-1} + 0.21\Delta m_{t-2} + 0.34\Delta m_{t-3} - 0.08\Delta m_{t-4}$$
$$(5.0) \qquad (1.2) \qquad (3.1) \qquad (-0.8)$$

$$+0.30\Delta e_{t-1} + 0.17\Delta e_{t-2} + 0.07\Delta e_{t-3} + 0.05\Delta e_{t-4}$$
$$(3.5) \qquad (2.1) \qquad (0.7) \qquad (0.7)$$

R squared = 0.95

4. As can be seen from the estimated VEC model, the unit labor cost variable is the most important factor in explaining the long-run behavior of inflation, followed by import prices and money in that order. However, the interpretation of such a long-run relationship between inflation, wage growth, money growth, and changes in import prices (the rate of depreciation) is not clear.[2] It does suggest, nevertheless, that in the long run the key macroeconomic nominal variables move in tandem (e.g., if wages, money, and import prices are growing by 10 percent, inflation would be around 12 percent). While the short-run dynamic (error correction) model has surprisingly good explanatory power and indicates that inflation responds positively to money and import price shocks in previous periods, the positive coefficient to the error correction term is odd and would seem to suggest that the model was dynamically unstable. Also, the negative coefficients to wage changes in previous periods are difficult to interpret.

5. The impulse response functions traced in Figure 1 point to broadly the same qualitative conclusions as those derived from the unrestricted model in levels discussed in the main text. Inflation responds positively to wage, money, and import price growth shocks, including an immediate and strong reaction to changes in the rate of depreciation that peaks after 5–7 months. Further, wage growth reacts quickly and strongly to changes in the rate of

---

[2]Coefficients are not elasticities as the model could not be estimated in logs due to the presence of negative observations (changes in import prices).

inflation, while faster wage growth in turn has a strong and persistent impact on money growth. Money growth responds negatively to higher inflation consistent with the findings earlier of nonaccommodation. As discussed in the main text, however, all these results need to be interpreted with great caution.

Table 1. Czech Republic: Test for Stationarity of Variables

	Levels		1. Differences	
	ADF 1/	PP 2/	ADF 1/	PP 2/
Net inflation (∏)	-3.63 (c,t)**	0.74	-3.39 ***	-3.99***
Growth in unit labor costs (W)	-1.17	-1.73*	-2.18 **	3.24***
Growth in broad money (M)	-2.73 (c,t)	-1.57	-1.75 *	-4.44***
Growth in import prices (E)	-2.04	0.5 (c,t)	-2.47 **	-2.29**

1/ Augmented Dickey-Fuller tests.
2/ Phillips-Perron tests.

Note: Two lags of the variables were included in the ADF test. (c) and (t) denote the inclusion of an intercept and a trend, respectively. *, **, and *** denote significance at the 10, 5, and 1 percent levels, respectively.

Table 2. Czech Republic: Test for Co-integration of Variables

Lags	Likelihood-Ratio test				Hypothesized number of CE's
	1	2	3	4	
∏, W, M, E	63.7**	45.7**	72.7**	119.2**	None
	24.7	18.0	27.5	68.4**	No more than one
	8.8	7.6	8.6	27.5**	No more than two
	1.4	0.1	0.7	7.7**	No more than three

Note: * and ** denote rejection of hypothesis at the 5 and 1 percent significance levels, respectively.

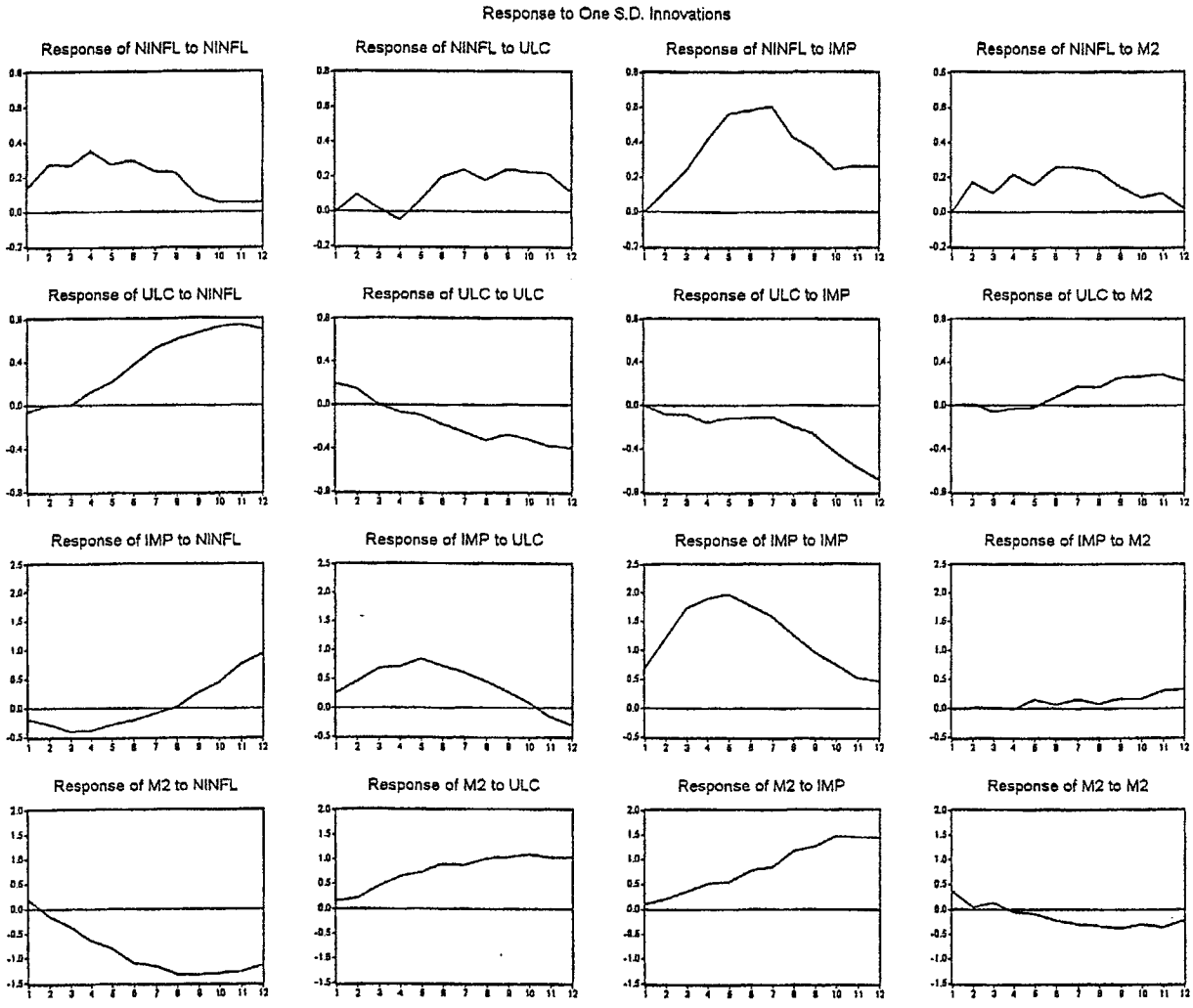
Table 3. Czech Republic: Pairwise Granger Causality Tests

	F-Stat.	Prob. (F)	Conclusion
$\Delta M \rightarrow \Delta \Pi$	3.31	0.05	Yes
$\Delta W \rightarrow \Delta \Pi$	5.27	0.01	Yes
$\Delta E \rightarrow \Delta \Pi$	2.07	0.15	Yes
$\Delta \Pi \rightarrow \Delta M$	0.80	0.62	No
$\Delta W \rightarrow \Delta M$	1.95	0.17	Yes
$\Delta E \rightarrow \Delta M$	0.95	0.52	No
$\Delta \Pi \rightarrow \Delta W$	0.59	0.76	No
$\Delta M \rightarrow \Delta W$	1.33	0.34	(No)
$\Delta E \rightarrow \Delta W$	0.84	0.59	No
$\Delta \Pi \rightarrow \Delta E$	1.81	0.20	Yes
$\Delta M \rightarrow \Delta E$	0.73	0.67	No
$\Delta W \rightarrow \Delta E$	1.03	0.48	

Note: Eight lags were included in the tests.

Figure 1

CZECH REPUBLIC
IMPULSE RESPONSES IN VEC MODEL



Testing the Sustainability of the Exchange Rate Band

1. Interest rates, the forward exchange rate, and the direction of capital flows reveal information about market confidence on the exchange rate band. In a setup of capital mobility, a credible band implies that domestic and foreign interest rates may not differ by more than the bandwidth: a larger difference leaves room for arbitrage profits, which in turn build up pressure for changing either the central parity or the bandwidth.[1] If, however, domestic and foreign rates differ by less than the bandwidth, the test is inconclusive. Similarly, a credible band implies that the forward exchange rate should be constrained within the fluctuation limits; if not, there are arbitrage profits to be made, which would put pressure on the exchange rate. This annex considers evidence from interest rate differentials and the forward exchange rate.

Evidence from Interest Rate Differentials

2. The annualized koruna yield from investing in a foreign asset for m months is given by $R_t=(1+i_t^*)(S_{t+m}/S_t)^{12/m}-1$, where i_t^* stands for the annual return of the foreign asset and S_t for the spot exchange rate of the koruna per unit of foreign currency. If S^U and S^L denote, respectively, the upper and lower limits of the fluctuation band, then a credible exchange rate band implies that the spot exchange rate m months ahead would be limited within $S^U \geq S_{t+m} \geq S^L$ and the koruna yield of the foreign asset would be bounded by:

$$(1+i_t^*)(S^U/S_t)^{12/m} - 1 \geq R_t \geq (1+i_t^*)(S^L/S_t)^{12/m} - 1 \qquad (1)$$

The interval implied by equation (1) is wider for shorter maturities as the effect of any given exchange rate change per unit of time increases; this tends to make the test inconclusive for shorter maturities.

3. If the domestic interest rate exceeds, say, the upper limit, $(1+i_t^*)(S^U/S_t)^{12/m} -1$, arbitrage profits can be made by borrowing abroad and lending the proceeds of the loan in the domestic market; the pressure would show up in the accumulation of official foreign exchange reserves (i.e., interventions to prevent the currency from appreciating). This was precisely the situation in the Czech Republic until the beginning of 1996 when interest rates of maturity longer than two months exceeded the bounds implied by equation (1). Indeed, the widening of the fluctuation band was intended to discourage nonresident investors from investing in koruna denominated assets, thereby reducing the need for sterilization operations. In the subsequent period until late-April 1997, all interest rates with a maturity of up to one year were within the implied bounds (Figure 1). The test is not sharp enough to detect the degree of market confidence in the exchange rate band during this period.

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[1]L. Svensson, "The simplest test of target zone credibility", Staff Papers, IMF, Vol. 38, (September 1991), pp. 655-65.

4. A domestic interest rate above the upper limit, which is unaccompanied by capital inflows, suggests expectations of depreciation. This was the case from late-April 1997 until the May 1997 attack on the koruna when the 12-month interbank interest rate moved outside the implied bounds: the higher interest rate differential represented an exchange rate risk premium that rendered arbitrage unprofitable. Although concerns about the sustainability of the band were voiced publicly already in March 1997, the test suggests that the *overall* market sentiment started to move against the koruna about a month later. Interest rates with a maturity of less than a year did not move outside the implied bands. Besides indicating the low power of the test, this suggests also that the market did not consider the depreciation imminent.

5. Two aspects need close scrutiny in conducting the test: the degree of capital mobility and the risk comparability of the financial assets involved. In the first case, the differential would incorporate the cost of the impediments to capital mobility. In the second case it might reflect differences in the default risk of the underlying assets. In such circumstances, the test should be performed after correcting interest rates for these two factors.

Evidence from the Forward Exchange Rate

6. The forward discount on the koruna did not reflect the increasing market concern about the sustainability of the exchange rate band. Except for periods of turbulence, the koruna has traded at a discount in the forward market,[2] which has broadly reflected the differential between domestic and foreign interest rates (Figure 2). This suggests not only the dominance of arbitrage in the determination of the forward exchange rate, but also the practice of currency traders to set forward rates on the basis of interest rate differentials and to hedge their positions with offsetting lending and borrowing operations. Deviations from covered interest parity (CIP) have been almost ½ of 1 percentage point prior to the May 1997 depreciation but they have doubled since then, probably owing to higher uncertainty. The deviations from CIP widened substantially immediately after the May 1997 depreciation of the koruna, as well as during the turbulence in foreign exchange markets in November-December 1997. The higher deviations reflect the relatively larger role of speculation during these periods as well as the shortage of funds for arbitrage (owing to the tightening of

---

[2]The market for foreign exchange forwards and swaps developed rapidly soon after the widening of the fluctuation band to ±7½ percent in February 1996; the large issues of euro-koruna bonds in late 1996/early 1997 have also provided an impetus. By April 1997 the volume of forwards and swaps had risen to ⅓ of the spot foreign exchange market. The rates in the domestic and offshore markets have been close, owing to the freedom of capital mobility and the internationalization of Czech financial markets.

monetary policy), the effect of higher uncertainty,[3] data imperfections,[4] and the fact that during the May 1997 episode several derivative instruments temporarily ceased to be quoted.

7. These observations are supported by an error correction (EC) regression of the discount on the three-month forward exchange rate (FR) on the differential between the domestic and foreign interest rate (Rdif), all in annualized terms. To account for differences in market attitude toward the koruna, uncertainty, and the like, the model was estimated separately for the pre- and post-depreciation periods. In the pre-depreciation period, the cointegrating equation:

$$FR = 0.19 + 1.098\ Rdif$$
$$(0.55)\ \ (0.087)$$

had a coefficient for the interest rate differential insignificantly different from unity. In the post-depreciation period, however, which is characterized by higher uncertainty and recurrent speculative attacks, the cointegrating relation was:

$$FR = 0.24 + 1.113\ Rdif$$
$$(0.43)\ (0.035)$$

The (statistically significant) greater than unity coefficient of the interest rate differential suggests a higher role of speculation whereas the higher constant term reflects the higher uncertainty.

8. The forward rate systematically underpredicted the depreciation of the koruna in May 1997. Despite deteriorating fundamentals, continued weakening of the koruna, and increasing market concern about the sustainability of the exchange rate band, the discount on the koruna remained fairly constant until about one week before the May 1997 attack (this probably reflects a negative correlation between expected depreciation and exchange rate uncertainty). Moreover, the forward rate of the koruna against the basket[5] remained *within* the fluctuation band up until the eve of the depreciation, implying that the market was caught by surprise by the abandonment of the fluctuation band, which is the expected behavior in an efficient market (otherwise, there would have been unexploited profitable arbitrage opportunities).

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[3]During periods of volatility in foreign exchange markets traders raise the premium above the interest rate differential to cover the risk of having to hedge their position at interest rates substantially different than the ones prevailing at the time of negotiating the forward contract.

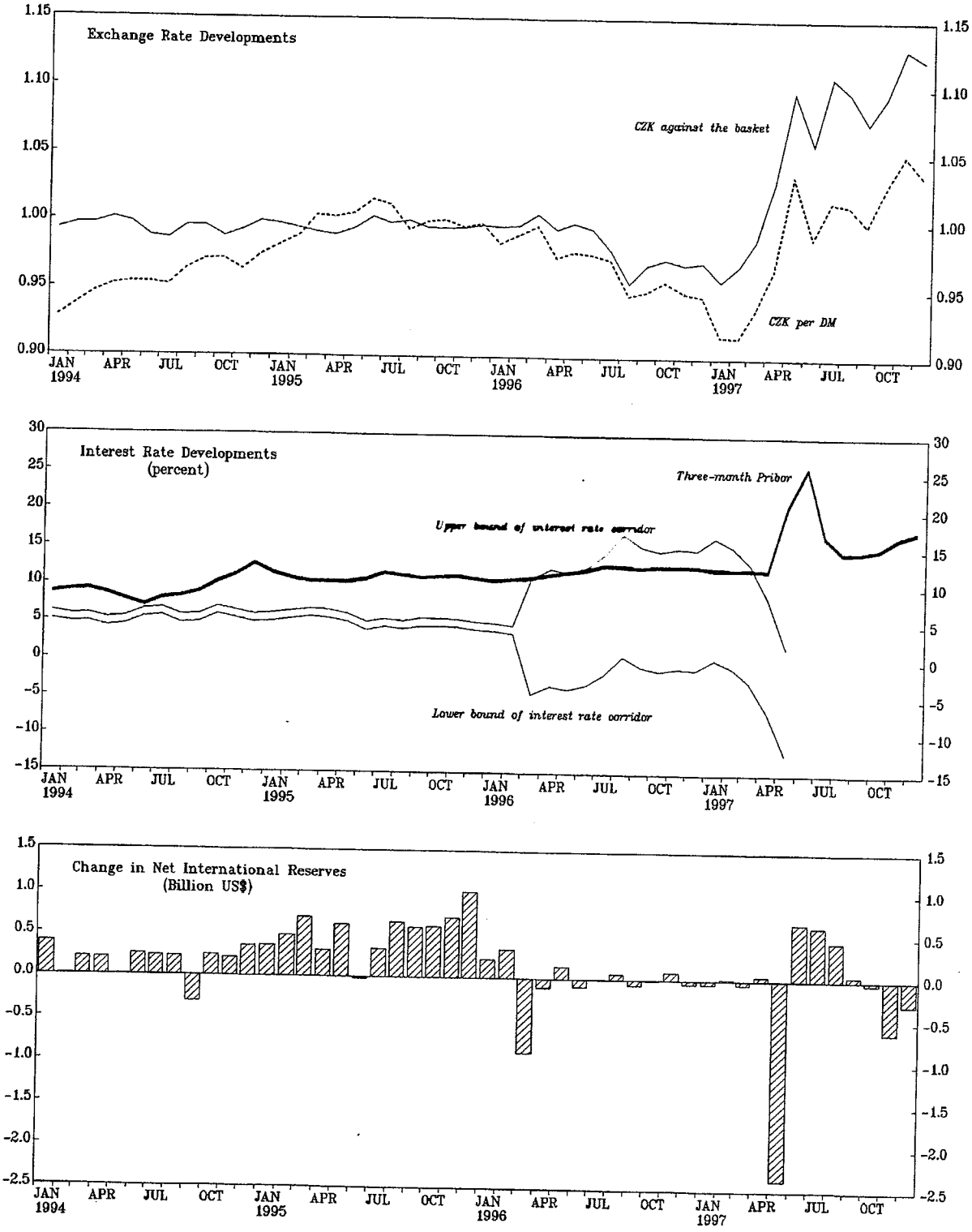
[4]The major problem is that interest and exchange rates are sampled at different times of the day; moreover, they may be quotations rather than actual transaction rates.

[5]The forward rate of the basket is calculated as the koruna cost of purchasing forward the amount of DM and U.S. dollars in the currency basket.

Figure 1

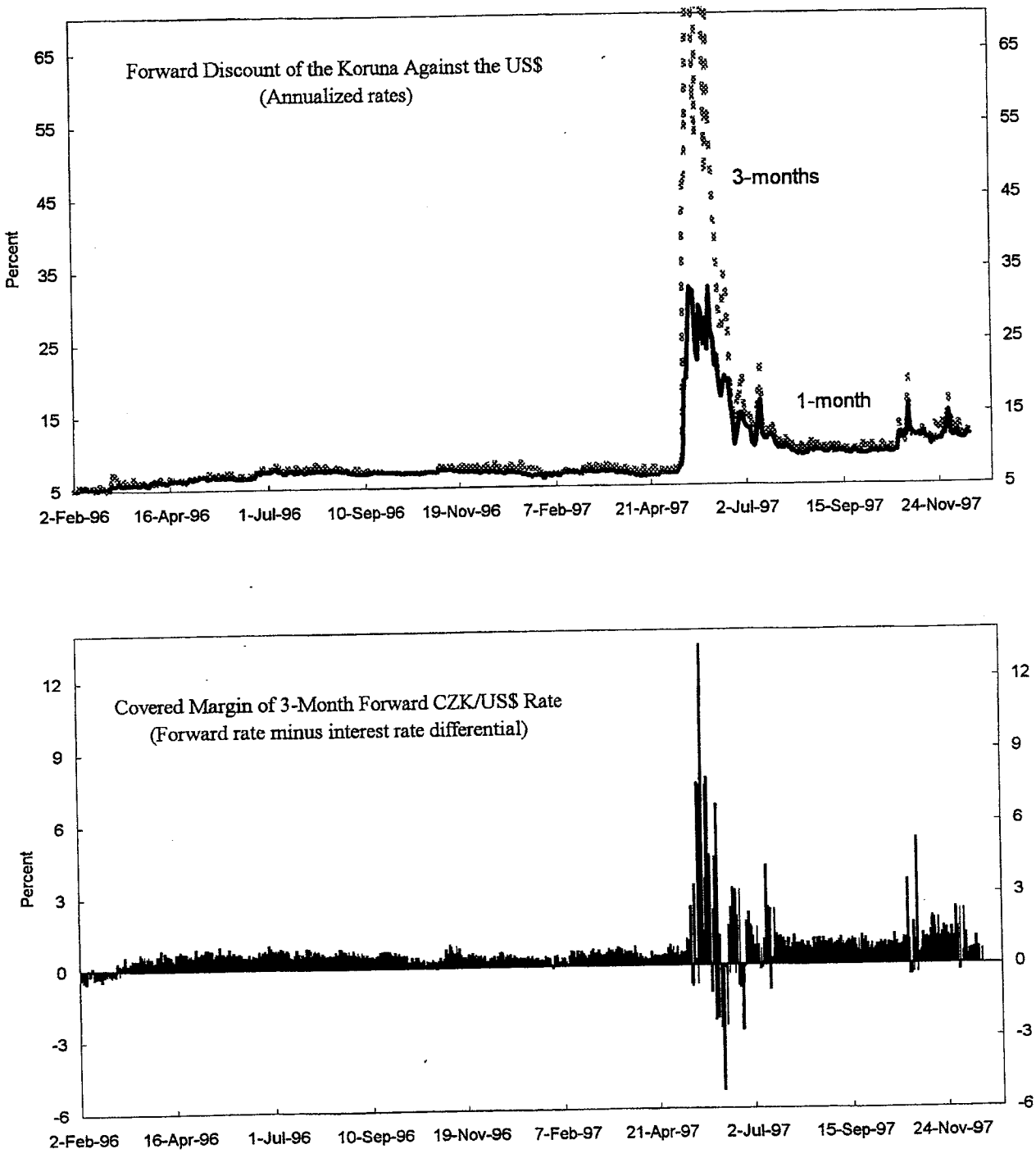
CZECH REPUBLIC

EXCHANGE RATE, INTEREST RATE, AND OFFICIAL RESERVES



Sources: Czech National Bank and Fund staff calculations.

Figure 2. CZECH REPUBLIC: FORWARD EXCHANGE RATE



Sources: CNB and staff calculations.

Events Related to Exchange Rate Developments in 1997

February 11. The koruna reaches a high of 5.5 above its central parity, following a wave of koruna-denominated Eurobond issues, prompting the CNB to "talk down" the koruna.

March 12. The Czech Statistical Office (CSO) releases industrial output data showing economy slowing. Prime Minister Klaus openly criticizes monetary policy stance as tight.

March 25. Prime Minister Klaus rules out devaluation or administrative measures to address widening trade deficit, and again criticizes monetary policy stance as tight.

April 11. The CNB announces a reduction of the reserve requirement ratio from 11.5 percent to 9.5 percent, effective May 8.

April 14. The exchange rate of the koruna reaches a ten-month low against the currency basket, trading close to parity, in advance of the expected announcement of a policy package.

April 16. Coalition announces a wide-ranging package of stabilization measures and structural reforms, including budget cuts of 1¾ percent of GDP. Prime Minister Klaus warns that the economy is slowing and urges a loosening of monetary policy.

April 28. The CNB denies rumors of imminent cut in interest rates.

May 2. The CSO revises its 1997 GDP growth projection to 2.9-3.5 percent from 4-5 percent.

May 12. The CSO releases 1997 Q1 industrial output data, confirming the slowdown of activity. Rumors of ministerial resignations.

May 14. The Thai baht comes under strong pressure. The Financial Times publish a negative country survey for the Czech Republic. Opinion poll shows Civil Democrats' (ODS) popularity at all-time low.

May 15. CNB intervenes in the foreign exchange market for the first time in over one year, as koruna weakens to 5 percent below its central parity.

May 16. The CNB raises the repo rate by 50 basis points to 12.9 percent; and, in light of continued pressure on the koruna during the day and need for intervention, it also raises the Lombard rate from 14 percent to 50 percent per annum. Notwithstanding continued interventions (US$1¼ billion over the two days) the koruna fails to recover to its pre-crisis level.

May 19. The CNB sets a *maximum* rate of 45 percent for its repos (to withdraw liquidity). The overnight repo rate in CNB auctions rises to 30 percent by mid-day and reaches

45 percent later in the day. Interbank rates double. The koruna strengthens about 2.8 percent below parity despite the absence of foreign exchange sales by the CNB.

May 20. The CNB limits access to the Lombard window to an unspecified portion of a bank's capital; in practice, this discriminated against branches of foreign banks, which have no capital of their own and are reportedly more active in taking positions against the koruna. As a result, overnight interbank rates rises to almost 100 percent, while three-month interbank interest rates (bid-offer) rise from 16-27 percent to 20-35 percent. Two major state-controlled banks doubled their prime lending rates to 25 percent.

May 21. Coalition discussions on Cabinet reshuffle continue. The CNB injects some liquidity with reverse repos at an average interest rate of 106 percent; it also continues to withdraw liquidity at an average interest rate of 57 percent. The koruna strengthens temporarily but the market remains very thin. The overnight interest rate remains close to 100 percent, although rates of 500 percent are also reported.

May 22. The koruna comes under renewed pressure, depreciating to 6.2 percent below parity early in the morning. In response, the CNB intervenes; closes the Lombard facility; raises the one-week repo rate to 75 percent; and instructs major domestic banks to limit access by non-residents to the Czech money market. As a result the koruna recovers to 3-4 percent below parity and the overnight interest rate reaches 200 percent. However, public confidence in the koruna weakens and residents start changing korunas into foreign currency. Polish zloty weakens. The National Bank of Slovakia informs larger banks they are not required to quote crown rates to nonresidents.

May 23. The koruna trades at about 4 percent below parity but with interventions after the fixing it strengthens to about one percent below parity. The CNB continues to withdraw liquidity at almost 75 percent with one- and two-week repos.

May 26. Market relatively calm due to a holiday in the U.S. and in currency markets in many London. The koruna opens at 1 percent below parity. Trade data showing an improvement relative to previous months fail to impress the market. Subsequently the koruna weakens to 3 percent below parity but, following CNB interventions, it strengthens again to 2 percent below parity. The interest rates in CNB's overnight and one week repos remain unchanged at almost 75 percent. A major state-controlled commercial bank reduces its prime rate by 4 percentage points to 21 percent. At 7:30 pm, the CNB Governor (in a joint press conference with the Prime Minister) announces that as of Tuesday (i) the ±7½ target band would be replaced by managed floating and (ii) the koruna would be stabilized vis-à-vis the DM but without officially binding limits. Later, the CNB made public an indicative range of CZK 17-19.5 per DM (which is equivalent to a range -11 to +1 from the central parity). The discount rate is raised by 2.5 percentage points to 13 percent; other CNB rates are kept unchanged. The Governor asks for additional macroeconomic (fiscal) tightening; the Prime Minister stresses the need to avoid wage indexation.

May 27. The koruna opens at 8 percent below parity, rapidly depreciates to almost 12 percent below parity (prompting CNB interventions and the rise of the discount rate from 10.5 percent to 13 percent), but subsequently strengthens to 10.7 percent below parity. The market remains extremely thin and margins large; interbank interest rates increase by 3 percentage points. Slovak crown heavily sold, reaches bottom of its ±7 percent band.

May 28. The koruna trades at about 11 percent below parity in a very thin market. There are no reports of intervention; the CNB supplies CZK 3 billion of liquidity at an average interest rate of 165 percent. Three month interbank interest rates decline by 1 to 4 percentage points. In the evening, the three parties in then ruling coalition agreed on a policy package to revive the economy: Budget cuts and freeze of public sector wages to balance the 1997 budget and attain a slight surplus in 1998; restrictions on imports financed by the budget; negotiations with the unions to stem wage growth; and additional measures (including higher tariffs) would be considered in the second half of the year if the external situation does not improve. After modest intervention succeeds in stabilizing the zloty, Polish Finance Minister declares zloty safe from speculative attack. Slovak crown strengthens after NBS persistent fixing above market levels.

June 2. CNB lowers repo rate from 75 percent to 45 percent.

June 7. The CNB announces that it had asked four banks (Chase Investment Bank Ltd, Commerzbank AG, JP Morgan Securities Ltd, and SBC Warburg) to arrange a US$1.5 billion one-year credit facility as a standby to strengthen its reserves.

June 9: Austerity measures agreed by the ruling coalition parties.

June 10. Coalition wins Parliamentary no confidence vote, by a single vote.

June 11. Taking advantage of the improved political situation after the confidence vote, the CNB reduces the maximum rate on its one-week repos from 39 percent to 31 percent and on two-week repos from 31 percent to 29 percent. Market participants expect the koruna to trade at 18.5–19 against the DM in the immediate future. Komercni reduces its prime lending rate by 4.4 percentage points (from 21.7 percent to 17.3 percent).

June 12. Access to the Lombard facility is reopened.

June 13. The maximum rate on one-week CNB repos is reduced from 31 percent to 29 percent.

June 17. Access by nonresidents to the Czech money market restored.

June 18. Government adopts the package of additional stabilization measures announced immediately after the floating of the koruna.

June 19. CNB reduces the repo rate from 29 percent to 25 percent.

June 20. CNB signs one-year US$2 billion revolving syndicated credit at 10 basis points over LIBOR; the cheapest credit granted to a sovereign transition borrower to date.

June 27. CNB lowers its Lombard rate from 50 percent to 23 percent.

July 2. The Thai authorities float the baht. The Philippine peso comes under pressure.

July 14. The Polish zloty depreciates by 5 percent in volatile trading.

July 21. The koruna temporarily weakens to 11½ percent below its former parity on fears that monetary policy will be loosened in the wake of extensive flooding.

July 24. Currency crisis in Southeast Asia; the Thai baht plummets by 25 percent.

October 23. The Czech Foreign Minister resigns; doubts about the viability of the coalition government. The CNB abolishes the limits of the short koruna position of banks and limits on the short position of banks vis-à-vis nonresidents.

October 23-28. Hong Kong stock market declines by 25 percent.

November 29-30. PM Klaus resigns. The koruna weakens to almost CZK 20 per DM 1.

December 17. CNB Governor Tošovský is appointed Prime Minister with the mandate to lead the country to early elections in 1998; the koruna strengthens.

Proximate Determinants of the Intermediation Spread

1. The intermediation spread, the difference between the average lending and average deposit interest rates, depends on market efficiency (competition depresses operating costs and profitability), credit/default risk, and the extent of regulation (high and nonremunerated required reserves raise the cost of intermediation). The spread is also a key determinant of bank profitability in environments such as that of the Czech Republic, where lending and deposit-taking dominate banking activity, although its importance has been waning as banks rely increasingly on foreign borrowing and deposit substitutes (bonds, certificates of deposit) for their funding, engage in nonlending activities (e.g., leasing) and raise significant revenue from fee-services.

2. The balance sheet and income statement of banks provide a useful framework for analyzing the determinants of the spread. A stripped-down version of the balance sheet:

$$L + \rho.D = D + A\,, \tag{1}$$

has on the asset side domestic currency lending to nonbanks, L, and required reserves, $\rho.D$, (where ρ stands for the required reserves ratio); and, on the liability side, deposit liabilities to nonbanks, D, and net other liabilities, A (including foreign currency lending, borrowing from the interbank market, and own funds). The corresponding income statement is:[1]

$$K = R_L L - R_D D - R_A A + I - C - Q\,, \tag{2}$$

where K stands for before-tax profits and R_j denotes the interest rate on item j. The first two terms in equation (2) capture net interest income, while the third, $- R_A A$, gives the net cost of net other liabilities. The remaining terms measure, respectively, noninterest revenue, I, operating costs, C, and the buildup of provisions for bad loans, Q. Scaling down equation (2) by lending to nonbanks, L, yields:

$$k = R_L - R_D d - R_A a + i - c - q$$

where the lower case letters denote ratios of the corresponding item in equation (2) to bank lending. Separating out the intermediation spread $(R_L - R_D)$ and the cost of required reserves evaluated at the average deposit interest rate, $-R_L d \rho$, and collecting terms yields:

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[1]The presentation is based on the current accounting practice of treating as regular income interest accruals on loss-loans given by $B.R_L$ where B stands for outstanding loss loans. If loan loss provisions fall short of the corresponding interest accruals, this practice can lead to the decapitalization of banks (via the distribution of paper profits) and to the overestimation of banks' capital adequacy. The payment of profit tax on accrued interest puts additional pressure on bank profitability.

$$k = (R_L - R_D) - R_D\, d\, \rho - [R_A - R_D]a + i - c - q\,. \qquad (3)$$

3. The **first term** on the RHS of equation (3) corresponds to the net interest income when lending is financed entirely by deposits. The **second term** captures the cost to banks from the requirement to keep nonremunerated reserves with the central bank. The **third term** captures the *differential* effect on profitability from funding part of lending from sources other than deposits (bank bonds, foreign borrowing, interbank borrowing, etc.); the overall impact of this depends on the extent to which (i) the cost of alternative funds, R_A, exceeds deposit interest rates, R_D, and (ii) banks fund their lending operations from alternative sources.[2] The **last two terms** capture the contribution of noninterest income (a relatively high value indicates resilience of banks' revenue to interest rate variability) and provisioning, respectively.

4. The terms on the RHS of equation (3) are not independent. When, say, interbank interest rates increase (reflected in a higher R_A), banks that borrow from the interbank market are forced to raise their spread so as to mitigate the negative impact on their profitability. Although aggregate profits may increase, the impact on bank profitability will not be uniform: net lenders in the interbank market (mainly Ceska Sporitelna) would benefit, but net borrowers would experience a weakening in profitability.

5. The contribution of provisioning in equation (3) may differ significantly from the credit risk premium, an important element in setting lending interest rates. It *overstates* the premium in the period before provisions reach their steady-state level and *understates* it subsequently.

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[2]A negative value of A in equation (1) means that deposits exceed lending and, therefore, banks use deposits to finance nonlending activities, while $-[R_A - R_D]a$ captures the *extra* revenue (in excess of the deposit interest rate) that banks generate from their nonlending activities. The term $a=1-d(1-\rho)$ measures the extent to which deposits are used for purposes other than lending or for meeting the minimum reserve requirement.