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Republic of Slovenia: Selected Issues

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INTERNATIONAL MONETARY FUND

REPUBLIC OF SLOVENIA

Selected Issues

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Approved by the European I Department

February 17, 2000

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I. Overview of Recent Macroeconomic Developments

A. The Real Economy, Prices, and the Labor Market

Output

1. Slovenia registered good and balanced economic growth during most of the 1990s, following the collapse of output associated with the dissolution of the Socialist Federal Republic of Yugoslavia (SFRY). The GDP growth rate peaked in 1997 at just over 4½ percent, and declined somewhat in 1998 to around 4 percent. The main contributors to growth during 1997–98 were domestic investment and external demand. In particular, the investment growth rate was both years in the double digits, fueled by low interest rates and strong corporate retained earnings and helped by wage growth that lagged that of productivity. Export growth was also strong during this period (close to 10 percent per annum), partly owing to favorable conditions in trading partner countries and partly to the real depreciation of the tolar (although this effect was reversed in 1998). Other domestic factors had only a limited impact on growth. Consumption increased at a slower pace than output, owing to the moderate wage growth and a small increase in the household saving rate (to 22 percent of GDP). As a result, the private consumption-to-GDP ratio declined by 1¼ percentage point in these two years. Also, the government consumption-to-GDP ratio was kept stable at around 20 percent.

2. There was a modest dampening of growth in 1999 due to weaker export demand. The slowdown in Western Europe, economic difficulties in Croatia, the Russian crisis and, to a very limited degree, the Kosovo crisis kept external demand low in the first half of 1999. Therefore, exports of goods and services declined during this period. At the same time, and in particular in the second quarter of 1999, imports surged in advance of the introduction of the VAT in July 1999. For the same reason, domestic demand picked up, largely compensating for the decline in external demand. Lower interest rates also helped spur consumption and investment, in particular in construction. In the second half of 1999, with the revival of demand in Europe, exports started to recover. This, coupled with only a partial reversal of the surge in domestic demand, led to an output growth of 3½ percent in the first three quarters of 1999 relative to the same period the previous year. For the year as a whole, the Institute of Macroeconomic Analysis and Development estimates 3¾ percent growth.[1] The increase in investment and decline in domestic saving stemming from strong consumption growth in anticipation of the introduction of the VAT widened the domestic saving-investment gap. As a result, this gap was financed by foreign saving, leading for the first time to a current account deficit (see Section D).

Prices

3. Slovenia's inflation performance continued to improve during 1997–98. From mid-1998, consumer price inflation started on a downward trend that lasted until mid-

[1] The Statistical Office, on the other hand, estimates that, at 4 percent, GDP growth in 1999 was similar to that in 1998.

1999. One important reason for this was the decline in import prices associated with lower world prices. Other reasons include the continued conservative macroeconomic policy stance; a relatively stable tolar; and lower tax rates. By mid-1999, the 12-month inflation rate had come down to 4¼ percent. This favorable trend was interrupted in July, when the VAT was introduced. Prices jumped by 1¾ percent in that month, and continued to increase in the following months. By October, the impact of the VAT on inflation had tapered off, limiting the total direct effect of the VAT on the price level to three months and about 3 percentage points. The timing of the introduction of the VAT helped contain its impact on inflation, as price growth is seasonally low in the middle of the year. Also, some administrative price increases were partially postponed to avoid a larger surge in inflation. Industrial producer price inflation, on the other hand, continued its downward trend for most of the year, as it was immune to the introduction of the VAT. However, the increase in world energy prices in the second half of 1999 kept year-end industrial producer price inflation to 3½ percent.

4. Relative prices have been constantly adjusting during this period. In 1998, average inflation in the service sector was 9¼ percent, while average CPI inflation was 6½ percent (Figure 1). During the same period, prices in the non-tradable sector rose by 7 percentage points more than those in the tradable sector. While the major part of this relative price change can be attributed to productivity gains (see Chapter II), other factors also played a role: some taxes were increased (on services by 1½ percentage points, on transport services by 6½ percentage points on average, and the municipal tax on road use by 51 percent); custom tariffs were lowered in line with the EU association agreement; and administered prices were liberalized gradually (the share of administered prices in the price index was reduced from more than 22 percent in 1996 to less than 15 percent in 1999).

Corporate sector

5. The corporate sector as a whole, which includes about 38 thousand companies, improved its financial results during 1997–98. After registering a total loss of more than SIT 60 million in 1996 (1 percent of total revenue), commercial companies closed 1997 broadly in balance, and had net profits of SIT 37 million in 1998. The main reason for this improvement in 1998 was stronger net financial revenues rather than increased efficiency, as labor costs and costs of goods, materials, and services increased by more than operating revenues.[2] Most of the profits were made in manufacturing, wholesale and retail trade, repair, transport, storage and communication sectors, while utilities registered the largest losses. Large companies (about 2 percent of the total) accounted for almost 70 percent of the assets, generated more than 60 percent of total revenues, and employed nearly 60 percent of all the workers. Medium-size firms were less than 5 percent of the total number of commercial companies, and small companies formed the remaining 94 percent.

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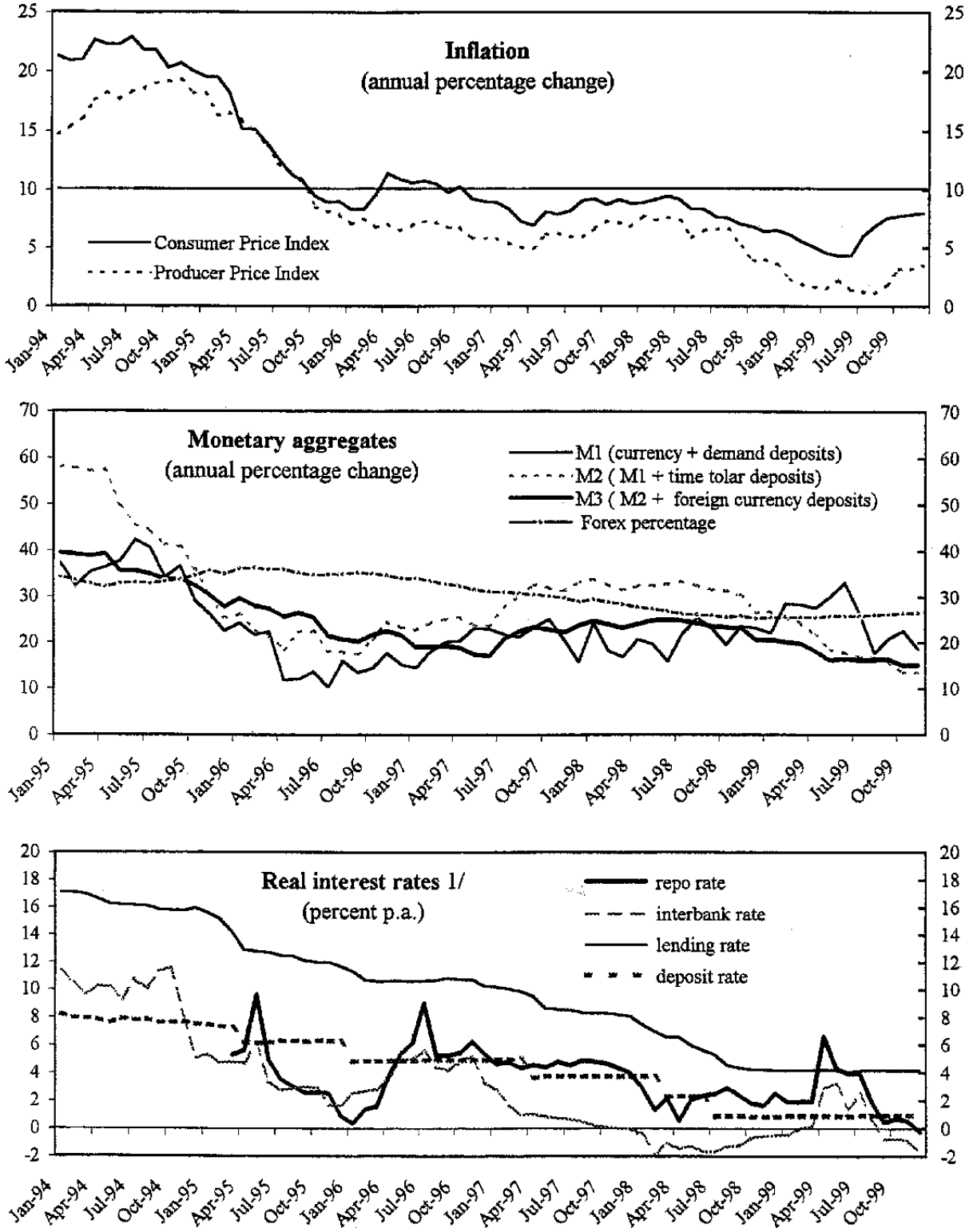
[2] See *Report on the Business Results, Assets and Liabilities of Companies in the Republic of Slovenia for 1998*, published by Agency for Payments of the Republic of Slovenia.

Figure 1: Slovenia: Prices, Money and Interest Rates



Source: Bank of Slovenia

1/ Interest rates are indexed on an average of past inflation rates (TOM), so the real rates represented here are the component above the TOM.

Employment and unemployment

6. The good economic growth during the last three years did not translate into comparable growth in employment. After an increase of 3 percent in 1997, there was no significant growth in employment during 1998–99, as output growth was achieved primarily through gains in productivity.[3] The share of employment was the largest in services (48 percent of total employment) and industry (40 percent of total employment), while the share of agriculture was 12 percent. Broken down with respect to age and gender, the employment rate was highest among males between 25 and 49, the category that had also the largest participation rate (93 percent).

7. The unemployment rate increased to almost 8 percent in 1998. Figures from the second quarter of 1999 (the period of the annual labor force survey), indicate that unemployment came back down to 7.4 percent.[4] The unemployment rate was highest among those between the ages of 15 and 24 (around 18 percent) and those older than 40 (approaching 50 percent). Also, the majority of the unemployed were unskilled workers and long-term unemployed (48 percent and 65 percent, respectively). The share of unskilled workers among the unemployed is positively correlated with the duration of unemployment, from 39 percent of those unemployed for less than one year, to 72 percent of those unemployed for more than 8 years. More women than men were unemployed in 1998 (unemployment rates were 8.1 percent and 7.7 percent, respectively), and this pattern was unchanged in 1999. Unemployment is also uneven across regions, with little change in the regional distribution during the last two years: the regional registered unemployment rate varied between 10 percent (around Nova Gorica) and 22 percent (around Maribor).

8. In 1998, the government extended its active labor market policies to a broader range of the unemployed, but with an emphasis on young unemployed workers without basic or suitable vocational training; the unemployed above 40; and those that were declared permanently redundant (see Box 1). These policies appear to have had a significant impact on employment: of those who participated in the education and training programs, between 20 and 70 percent found employment within the first six months after graduation, depending on the type of the program.

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[3] This result is based on the Labor Force Survey. Result based on business surveys indicate that employment actually was on a small upward trend since 1997.

[4] Data on registered unemployment, which are probably overestimating the extent of the phenomenon, show a decline from 14.5 percent in 1998 to 13 percent in 1999. Part of this decline, however, reflects a re-classification of workers on public works (a form of active labor market policies) as employed.

Box 1. Active Labor Market Policies

Current active labor market policies have three main components. The first is a collection of education and training programs, addressed to a wide range of the unemployed. The short-term programs include assistance in job search and in planning a career, training in foreign languages, use of software, and courses on specific skills. In addition, there are longer-term programs (six months to three years) that provide primary and secondary education to adults. Finally, employers give subsidized on-the-job training to workers who remain on the job after graduation from the program.

The second component is public work programs that generate temporary employment for those classified as long-term unemployed. These are non-profit programs in the fields of social security, education, culture, environment, municipal services, and agriculture. They target older, long-term unemployed who cannot find suitable employment through regular job search assistance.

The third component is a program that refunds social security contributions to employers. These refunds are conditional on the length of employment (at least two years is required), the size of the firm (firms with fewer than 50 employees are encouraged), and the age of the employee (hiring those older than 50 is encouraged). The refunds can be as high as the entire contribution (38 percent of the gross wage).

Wages

9. During 1997–99, wages were controlled by a series of agreements among the social partners (trade and employers' unions and the government). The 2-year Social Agreement reached in 1996, which regulated not only wage increases, but also included understandings on taxes, pensions, and other benefits, expired in 1997. A similar agreement was not reached afterward owing to disagreements among the social partners, but a more limited 2-year wage agreement, covering wage increases, was reached in 1997, and was incorporated into the Minimum Wage and Wage Adjustment Mechanism Act that was passed by Parliament and remained in force until mid-1999. In this agreement, the adjustment of the base wages for inflation was restricted for the first time to once a year and to 85 percent of actual past inflation. A safeguard clause was included, which allowed wage adjustments within the year if inflation turned out to be higher than projected, but it was not triggered. The social partners reached a new wage agreement in March 1999 for the period of 1999–2000. The agreement contained a similar safeguard clause, with projected inflation at 6.8 percent and 4 percent for 1999 and 2000, respectively. An exceptional indexation clause was included for 1999, to alleviate the impact of the introduction of the VAT on wages. This indexation allowed August wages to be increased by 85 percent of actual inflation in the first six months of 1999, but restricted the next wage increase by linking the magnitude of the increase to the three-months inflation prior to the introduction of the VAT, instead of the three months after that date. Also, additional clauses were included to allow employees with lower-than-average wages to receive temporary additional payments. Finally, the minimum wage was to be raised by more than the average wage, until the ratio of minimum to average wage reaches 58 percent from its current level of 53 percent.

10. As a result of these successive agreements, during 1997–99 wage growth remained moderate, underpinning a sustained improvement in profitability and cost competitiveness. In 1997, average gross wages per employee rose by 11¾ percent and real wage growth (at around 3¼ percent) was half a percentage point lower than

productivity growth. In 1998, real wage growth was even more subdued (2¼ percent). Similarly, in 1999, real wage growth is projected again to have been lower than productivity growth (real gross wages on average increased by 2 percent year-on-year in the period through September 1999). According to the current wage agreement, real wages in the private sector are expected to rise by about 2 percent in 2000.

B. Public Finances

Coverage of fiscal statistics

11. The general government accounts comprise the state budget, the local government budgets, the pension fund, and the health fund. The government uses two definitions of the fiscal balance. The first (general balance) is equal to the difference between total revenues and total expenditures. The second (overall balance) includes net lending (which, in Slovenia, includes privatization receipts in accordance with the current GFS Manual). To facilitate the identification of the effects of privatization revenues on the fiscal balance, the Statistical Annex tables present both definitions, as well as a deficit line treating privatization receipts as financing.

12. The accounting of other public funds is not uniform. Non-profit public entities (*Zavods*) are not consolidated into the general government. They comprise providers of public services that are wholly or partly state-owned but, in general, independently managed, e.g., hospitals, education institutions, cultural organizations, and sports centers. Under the new budget classification (in place since 1999), the transfers to these institutions are broken down along their economic classification, giving a more precise picture of the composition of general government spending. The nineteen extrabudgetary funds, including the Highway Fund, the Export Corporation, and the Deposit Insurance Fund, are also not consolidated into the general government accounts, although they also generally fulfill at least in part public functions. It should be noted, however, that the aggregate balance of the extrabudgetary funds is generally close to zero. In line with EU requirements, the Slovene government is working on a change in accounting practices with a view to consolidating those public entities and funds that are providing predominantly public services into the general government sector.

Developments in 1998

13. A midyear adjustment in budget expenditures, which more than offset a limited shortfall in revenues, resulted in a deficit for the general government of 0.8 percent of GDP, compared to 1.2 percent of GDP in the budget. In late summer 1998, it had become apparent that the budgeted revenue targets would not be met. This was primarily the result of lower collections of personal income tax, social security contributions, and sales taxes, owing to lower-than-projected wage growth and the resulting sluggish consumption growth. (Corporate income tax and non-tax revenues, on the other hand, performed better than expected.) To prevent a deficit overrun, the government imposed a 3 percent across-the-board spending cut on the state budget in late September. In addition, as in 1997, the government extended the 1998 fiscal year into January 1999, by

which time revenues were only 0.2 percent of GDP below the budget target for the year. Expenditures, however, turned out 0.6 percent of GDP lower than budgeted.

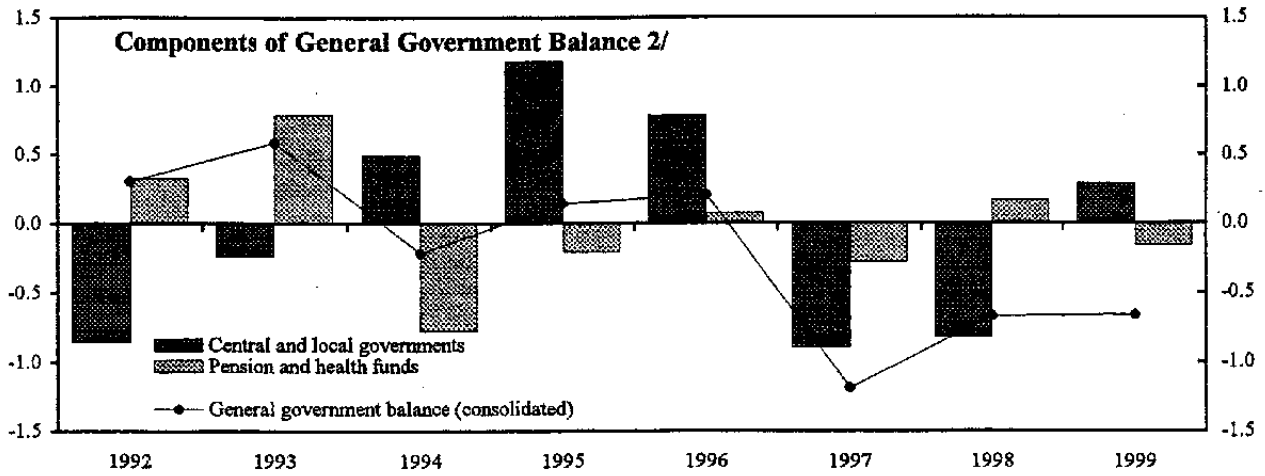
14. There were no significant changes in the overall structure of revenues and expenditures in 1998. Total revenues increased somewhat to 43.1 percent of GDP, the same level as in 1995, while expenditures rose to their highest level since the start of the transition period, at 43.9 percent of GDP. In line with the progressive adaptation of the tax structure to EU standards, the revenue side saw a further decline in receipts from trade taxes, which amounted to 1.5 percent of GDP—only half the 1996 level—while the share of domestic taxes on goods and services continued to increase, reaching 14.8 percent of GDP. Social security contributions and income taxes remained unchanged at 13.8 percent and 7.8 percent of GDP, respectively. Non-tax revenues rose sharply to 2.7 percent of GDP, owing in part to higher entrepreneurial income. As in earlier years, the structure of expenditures reflected the government's traditionally important role in income redistribution, with current transfers amounting to close to 20 percent of GDP. Current transfers comprise mainly those to households (17.7 percent of GDP), in particular pensions (12 percent of GDP), but also include the steadily increasing social transfers, such as child benefits and war veterans' benefits.

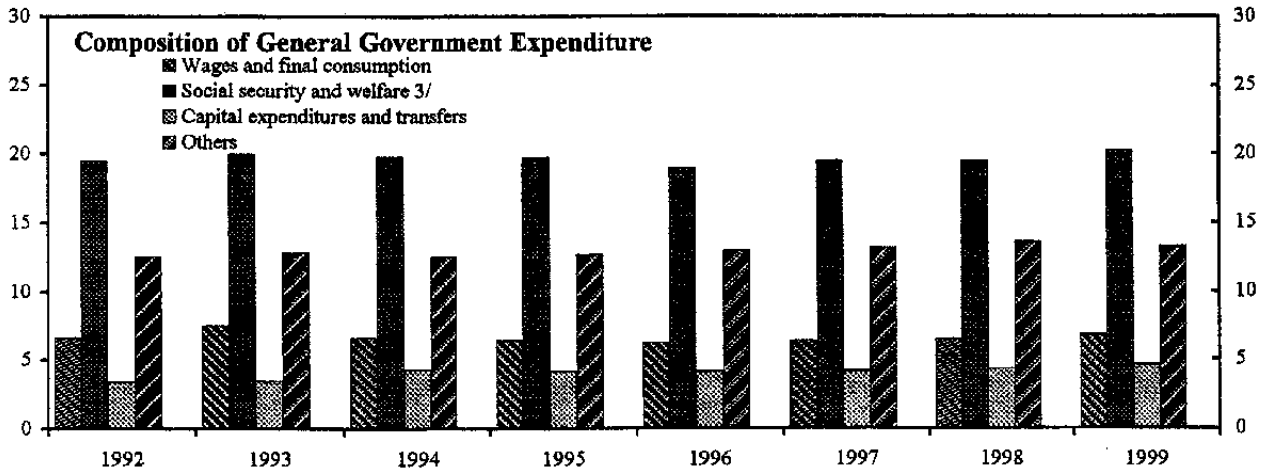
Developments in 1999

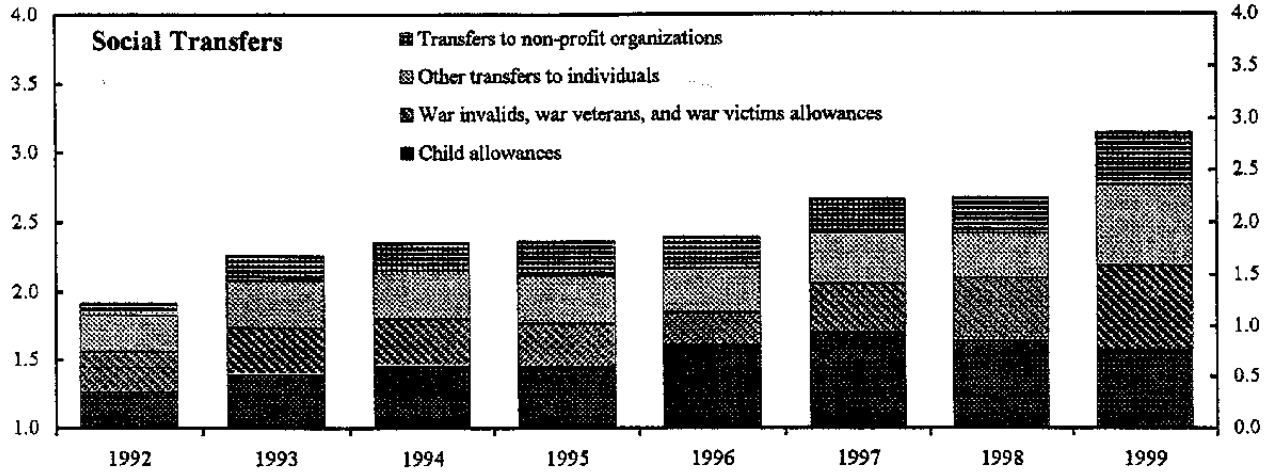
15. Higher-than-budgeted expenditures were offset by the revenue impact of the change in the composition of aggregate demand toward domestic consumption. Thus, the overall government deficit remained unchanged relative to 1998 at an estimated 0.7 percent of GDP, slightly below the budget target of 0.8 percent of GDP (Figure 2). The main source of the expenditure overrun (a total of 0.5 percent of GDP relative to the budget) was the pension system, where the unexpectedly high adjustment of pensions in December 1998—after the approval of the 1999 budget—increased the basis for pension expenditures for the whole of 1999. While capital expenditures also turned out higher than budgeted, savings occurred in capital transfers and expenditures on goods and services. Overall revenues came out 0.7 percent of GDP higher than in the budget, with overperformance in tax revenues from goods and services and social security contributions more than offsetting shortfalls in nontax revenues and income taxes. Consumption tax collection, in particular, benefited from strong growth in consumption owing to the anticipated price effects of the VAT introduction in July. Income tax collection, on the other hand, remained somewhat subdued, and non-tax revenues suffered from lower profit transfers from public enterprises and financial institutions. Privatization revenues, originally budgeted at zero, amounted to 0.3 percent of GDP in 1999.

16. The budget volume once again reached a record level in 1999, with total revenues and expenditures reaching 44.5 percent of GDP and 45.1 percent of GDP, respectively. The revenue structure reflected the continuation of the long-term trend towards indirect taxation: the share of total taxes on goods and services grew from 14.8 percent of GDP in 1998 to 16.8 percent of GDP in 1999, while taxes from trade continued to decline, falling from 1.5 percent of GDP to 1.3 percent of GDP. The sum of income taxes and social security contributions relative to GDP remained unchanged compared with 1998.

Figure 2. Slovenia: General Government Operations 1/
(In percent of GDP)







Source: Ministry of Finance, Slovenia.

1/ Estimates as of July 1999 provided by the Ministry of Finance.

2/ The component balances are unconsolidated and do not add up to the consolidated general government balance.

3/ Transfers to households, transfers to non-profit organizations, and subsidies.

The major change on the expenditure side was an increase in current transfers by 1 percent of GDP, reflecting the higher spending on pensions. At the same time, spending on goods and services decreased somewhat.

17. The outcomes of the individual components of the general government provide some further information. The pension fund reported a deficit of some SIT 7 billion (0.2 percent of GDP) instead of the programmed SIT 4.3 billion, owing to the higher pensions. In the health fund, with a surplus of SIT 0.7 billion, the outcome was somewhat better than the budgeted balance. Local governments had been expected to generate a surplus of around SIT 7.9 billion, but the outcome was worse, only SIT 3 billion surplus, largely as a result of the increase in the number of local authorities by around 30. Finally, the state budget showed a SIT 20 billion deficit, as opposed to the budgeted SIT 30 billion. This was the major cause behind the better-than-budgeted outcome for the general government as a whole.

18. There was a major change in tax policy in 1999. Effective July 1999, the government implemented a new VAT replacing the previous sales tax, to comply with EU tax standards. The VAT carries a standard rate of 19 percent and a reduced rate of 8 percent (for food, water supply, and printed material), while some services, for example, medical and financial services, are free of tax. Overall collection from the new VAT and excise taxes was in line with expectations, as small shortfalls in VAT collection were compensated for by higher-than-expected receipts from excises. The shortfalls in VAT collection can be attributed to a slowdown in consumption (especially for durables) in the second half of the year, after the boom in the second quarter. The excise taxes on mineral oil, alcohol, and tobacco products, on the other hand, benefited from sustained demand for those products. The implementation of the VAT went smoothly without administrative disruptions. New taxes were also introduced on gambling, the sale of insurance services, and the sale of new and used cars, but total revenues from those taxes amounted to less than 0.2 percent of GDP.

19. Slovenia's central government debt-to-GDP ratio reached almost US$5 billion, or 25 percent of GDP in 1999 (June data) up from 23.6 percent of GDP in 1998. About half of the debt stock (53.8 percent) was denominated in domestic currency, with euro-denominated (26.4 percent) and the U.S. dollar-denominated debt (17.6 percent) making up almost all of the remainder. Debt service amounted to some 3.9 percent of GDP in 1999, and is expected to increase further to a peak of 4.2 percent of GDP by 2001, before gradually declining over the following years with a minor hike in 2005. Interest costs, in particular, amounted to 1.4 percent of GDP in 1999, and are projected to decline over the medium term. Outstanding debt guarantees made up 6.2 percent of GDP in 1999. No further liabilities from the SFRY are expected to be added to Slovenia's debt burden.

The 2000 budget

20. The budget for 2000, approved in January 2000, foresees an overall deficit of 1 percent of GDP, with lower revenues and expenditures than in 1999. In particular, spending is projected to fall from 45.1 percent of GDP in 1999 to 44.7 percent in 2000, and revenues to decline from 44.5 percent of GDP in 1999 to 43.7 percent in 2000. The

major source of the expenditure savings is the reform of the pension system (Box 2), providing some 0.4 percent of GDP in savings annually. Continued wage moderation and a moderate expansion of the number of public employees by about 200 staff are expected to keep the overall payroll constant in percent of GDP. With exports, rather than consumption, re-emerging as the engine of growth, consumption taxes are projected to return to their 1998 level relative to GDP, while revenues from trade taxes to continue on its downward path, falling to 1 percent of GDP. Some of this fall is expected to be offset by higher revenues from the full-year effect of the excise taxes on oil, tobacco, and alcohol, and the other new taxes introduced in July 1999. Overall, the revenue projection for 2000 is clearly on the conservative side.

Box 2. Pension Reform

The new law on Pension and Disability Insurance introduces changes to the current social insurance system, as well as a new supplementary insurance scheme. The objective is to improve the financial viability of the current system, in part through shifting some of its pension liabilities to the supplementary scheme. While providing expenditure savings of about ½ percent of GDP annually, the reform is also expected ensure financial viability of the pension system for at least 5 to 8 years.

The major changes in the current pension system are an increase in the retirement age for women, reductions in the replacement rate, and the introduction of minimum state pensions. In particular, the minimum retirement age for women increases gradually to 58 to 63 years by the year 2014, depending on the number of qualifying years; while for men, the range of retirement ages remains at 58 to 65 years. In addition, there is greater flexibility on the date of retirement, as the insured will be able to choose the exact date around the so-called "full retirement age". The full retirement age for women will be 61 by the year 2023, and that for men 63 by 2009. Pension rights will continue to accrue after the "full retirement age," thus providing financial incentives to remain in work, but disabled and unemployed will be able to retire early without loss of benefits.

To reduce the average replacement rate, the current maximum rate of 85 percent—for 40 and 35 years of insurance of men and women, respectively—will gradually be reduced to 72.5 percent. For persons who are not entitled to pension benefits but fulfill the eligibility criteria, a minimum state pension will be provided, financed from general tax revenues.

The new supplementary insurance scheme is expected to take over some of the current pension system's liabilities. Participation in the system, which is to be run on a fully-funded basis by banks and insurance companies, is voluntary, but the government expects participation in the scheme to become part of wage contracts, thus making it near-universal. In addition, tax incentives will induce employers to insure their employees in special occupational insurance schemes.

21. The new pension reform law, approved by parliament in December 1999 with the objective of achieving financial sustainability of the pension system, is a key piece of legislation for the public finances, including the 2000 budget. The stability of the pension system had been eroded by previous reductions in the contribution rate and extensions of benefits, as well as adverse demographic trends. While the reforms are expected to achieve a stabilization of the pension fund deficit at around 4 percent of GDP over the medium term, the objective of full financial viability was missed and further reforms will likely become necessary after at least five to eight years.

C. Monetary Developments and Policies

Overview

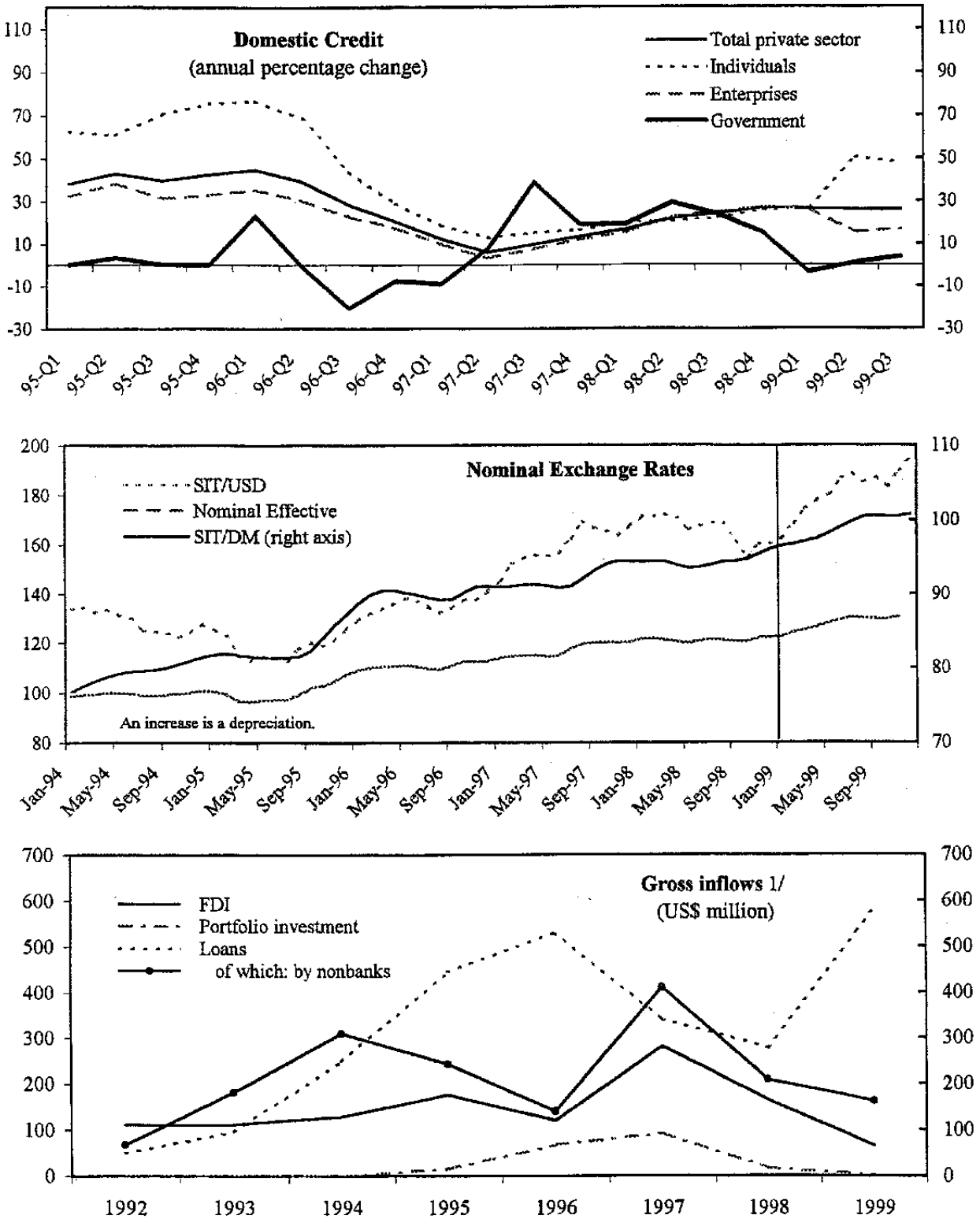
22. The Bank of Slovenia (BoS) officially pursues a policy aimed at lowering inflation to European levels and maintaining the stability of the currency. Since 1997, the intermediate target of the BoS has been the growth of the broad monetary aggregate M3 (defined as the daily average of the last quarter of the year relative to the same period last year). During 1995–98, to limit the impact of large inflows of foreign capital on the domestic economy and achieve its monetary targets, the BoS resorted to heavy capital controls. This allowed the BoS to maintain a significant amount of control over the level and volatility of the exchange rate. The BoS had to conduct its monetary policy in a limited competition environment, which hindered the efficient transmission of policy to the rest of the economy. Indeed, the banking system is dominated by three large banks holding over 50 percent of assets and concentrating about a 50 percent share of the markets for loans and deposits. Such domination extends to the interbank market, where interest rates are conditioned by the liquidity needs of the largest players. Moreover, since 1995, the BoS had officially sanctioned a cartel agreement imposing ceilings on deposit interest rates to limit the risk-taking behavior of smaller banks in the market for funds. These measures, together with the lack of short-term government debt securities with which to conduct monetary policy operations, limited the development of the domestic money market and weakened further the monetary transmission mechanism. However, during the course of 1999, the cartel agreement and most controls on capital flows were abolished. In addition, with the decision taken by the government to step up its program of Treasury bill issues at short and medium-term maturities, the operation of monetary policy can be expected to change drastically over the coming years. For a full discussion of the structural constraints on monetary policy, see Chapter III.

Recent monetary developments and policies

23. Until the middle of 1998, inflation had plateaued in the high single-digits, partly due to the pervasive indexation of the economy—wages, pensions and financial contracts—on past inflation. However, a policy of limiting adjustments in controlled prices (controlled prices increased by 10 percent in 1998, against the 14 percent increase of 1997), as well as the successful implementation of the wage agreement limiting wage indexation[5], resulted in the progressive weakening of inflation expectations. This provided momentum for a further decline of inflation from the second half of the year onwards, and allowed the BoS substantially to ease its monetary policy. By end-1998, inflation had fallen to 6.5 percent, against 8.8 percent year-on-year in December 1997. In the 1998 monetary program, announced in March, the BoS had set a target for the growth of broad money to 22 percent, with a range of ± 4 percentage points. With inflation on a downward trend, the BoS allowed real interest rates to fall, spurring an increase in private credit during the year (Figures 1 and 3). Nonetheless, the much lower-than-expected

[5] Starting with the 1997 wage agreement, wages are adjusted by 85 percent of the increase in consumer prices (see Section A).

Figure 3: Slovenia: Credit, Exchange Rates, and Capital Inflows



Source: Bank of Slovenia and IMF staff estimates.
1/ Figures for 1999 are for the first three quarters.

volume of foreign capital inflows (inward FDI, portfolio investment and nonbank borrowing abroad fell by half in 1998 relative to 1997, see Figure 3), meant that, despite the monetary easing in the second half of the year, broad money growth ended the year close to the lower range of its target, at 20.2 percent (Figure 4).

24. Inflation continued to decline in the first months of 1999, reaching an all-time low of 4.3 percent in June. The target growth for broad money in 1999 was lowered by 2 percentage points relative to 1998, to 20 percent, again with a ± 4 percentage points range. As M3 growth almost hit the bottom of this range in May, falling to 16.1 percent, and foreign capital inflows completely dried up following the crisis in Kosovo, the stance of monetary policy was relaxed further. Following a surge in domestic demand due to expectations of price increases following the introduction of the VAT in July, the BoS allowed the exchange rate to depreciate and refrained from sterilization. Moreover, as firms held on to their cash in preparation for the first VAT payments and households reduced their deposits in banks, generating liquidity pressures in the banking sector, the BoS accommodated these pressures and became for the first time in over 2 years a net provider of liquidity to the banking system (see below).

25. The impact of the VAT on prices caused inflation to jump back to its level of about a year ago. To pre-empt an inflationary spiral, the BoS tightened its policy stance in the second half of the year, bringing M3 growth down to about 15 percent in the last quarter. Average fourth quarter M3 year-on-year growth—the definition of the target—reached 16 percent, just the bottom of its target range, and the exchange rate stabilized. For the year as a whole, the exchange rate was depreciated by 5 percent against the mark and 9 percent against the dollar in 1999, most of it during the first half (Figure 3). In February and September, capital controls were removed in accordance with Slovenia's EU association agreement, virtually completing the opening of the capital account.[6] However, due to the international financial market conditions, over the first 3 quarters FDI inflows amounted to a mere US$66 million, and there was hardly any portfolio investment (US$2 million).

26. On January 31, 2000, the BoS announced its new policy program for 2000 and reaffirmed the primacy of its monetary target. It lowered the mid-point target for the growth of broad money to 15 percent and narrowed its range of fluctuation to ± 3 percentage points.

Changes in monetary policy instruments

27. The BoS relies on a wide assortment of instruments to conduct its policies. First, to sterilize foreign capital inflows, the BoS issues foreign exchange bills. Banks have a

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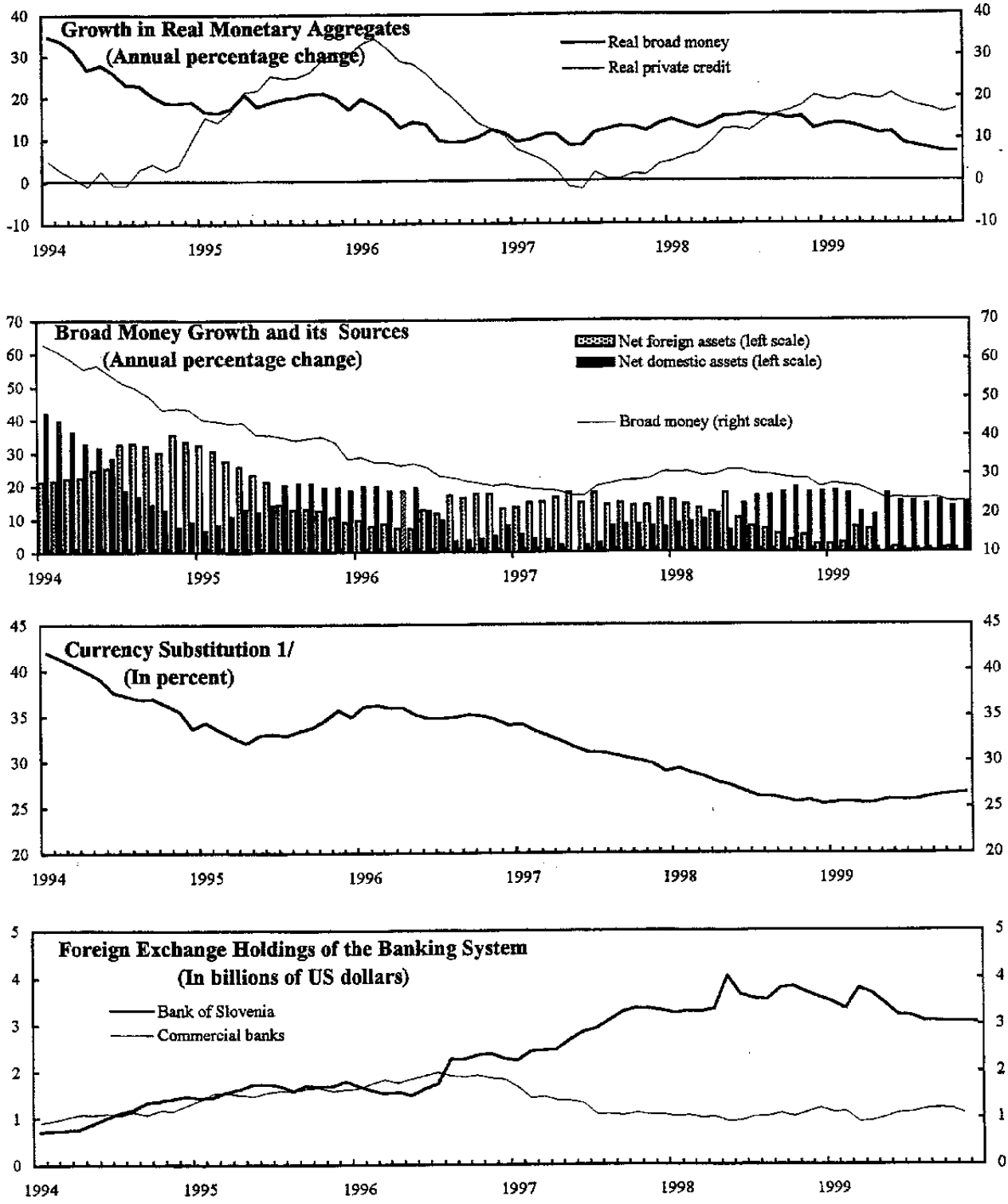
[6] Restrictions on some short-term portfolio flows remain. The new Foreign Exchange Law imposes a minimum holding period of one year for foreign portfolio investors before being allowed to sell without having to bear the cost of a custody account. Residents' portfolio investment abroad is also restricted to very safe instruments—securities issued by an OECD country and bonds with at least an AA rating. See Section D for details.

Figure 4. Slovenia: Monetary Developments



Source: Bank of Slovenia.

1/ Foreign exchange deposits as percent of broad money.

strong motive to purchase foreign currency bills, since such instruments can serve as collateral for BoS loans, can be temporarily sold to the BoS, and those with maturity of up to 120 days also serve to comply with the BoS requirement for banks to keep a minimum stock of foreign exchange. The BoS also uses this instrument for short-term repurchase operations (repos) to reduce the amount of foreign exchange in the market without affecting reserve money, and fine-tune the management of base money.[7] Second, the BoS intervenes directly in the spot foreign exchange market through outright sales and purchases of foreign exchange. In 1998 and 1999, the BoS signed an agreement with 12 banks (with a total market share of 70 percent) guaranteeing their concerted participation to such interventions.[8] Third, the BoS is attempting to control the growth of money supply through the use of a wide array of instruments. Among them, tolar bills of different maturities are issued to withdraw domestic liquidity, and quantity instruments, such as the use of different types of reserve requirements on domestic and foreign currencies, are also adjusted to control the growth of broad money. For more detail on the BoS's instruments and their use, see Chapter III.

28. During 1998–99, the BoS continued to adjust this existing set of instruments to achieve its policy goals. To achieve lower inflation, the BoS was guided primarily by its M3 target and money market indicators (interest rates, realization of tenders, excess of mandatory reserves). Conditional on achievement of its monetary target, the BoS also tried to minimize exchange rate volatility, preserve competitiveness, and thwart capital inflows. During 1998 and 1999, however, the absence of significant foreign capital inflows allowed the BoS to reduce the outstanding stock of such instruments (Table 1). The drop of the interest rate differential with Germany also reduced the need for the BoS to keep intervening directly in the spot foreign exchange market (Figure 5). Thus, in the first half of 1999, the BoS became a net provider of foreign exchange in the market. This situation continued in the second half of the year, as the BoS continued to accommodate firms' demand for foreign exchange, despite a pick up in interest rates resulting from banks' need to attract deposits and the tightening of monetary policy to pre-empt an inflationary spiral following the VAT introduction.

29. To control liquidity, the BoS also issues a variety of short-term tolar-denominated bills (tolar bills, twin bills, bills with warrants) with maturities ranging from 2 to 270 days, and has a range of lending facilities, such as Lombard, short term, and liquidity loans. By September 1999, the stock of BoS tolar bills had dropped by 40 percent relative

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[7] The BoS temporarily purchases the bills from banks, which are then obliged to buy foreign exchange from enterprises in the first week of the repo operation, in a proportion equal to 120 percent of the value of the bills sold to the BoS (this percentage is determined by the BoS). Banks then repurchase the bills from the BoS, generally in excess of the initial amount sold (oversterilization), thereby tightening the growth of base money.

[8] Banks purchase the foreign exchange from the BoS at the intervention rate and sell it to the market at the same rate during the intervention period (the reverse is true for BoS purchase interventions).

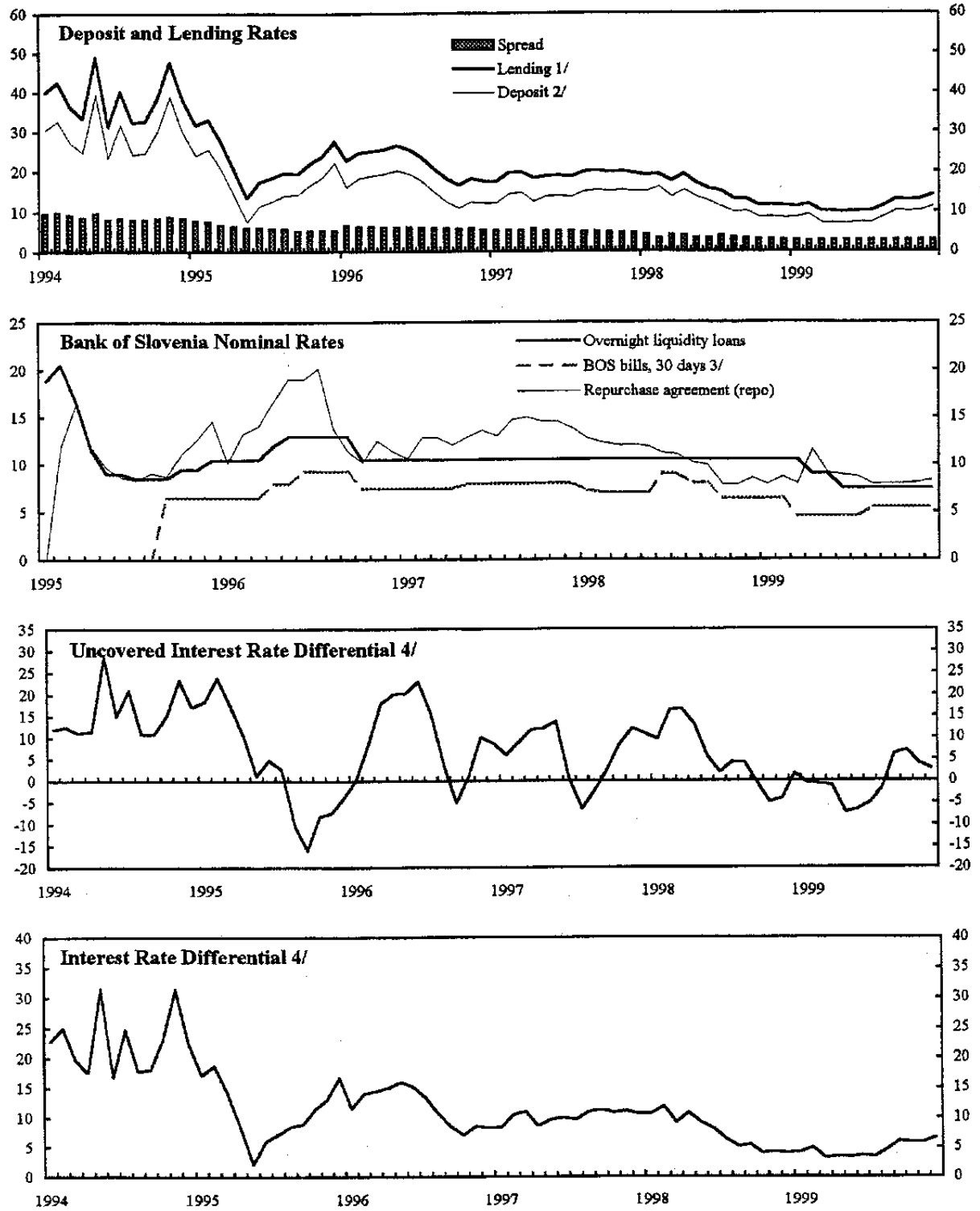
Table 1. Slovenia: Monetary Policy Instruments 1/

	Stock at end-1997	1998 I.	1998 II.	1998 III.	1998 IV.	1999 I.	1999 II.	1999 III.	1999 IV.
	(in millions of tolars)								
Loans to banks	3,968	2,386	1,233	474	508	2,241	7,722	3,940	1,706
Lombard loans	0	167	364	107	125	509	576	34	14
Short-term loans	3,968	1,784	560	8	0	583	3,201	2,252	1,337
Liquidity loans	0	435	305	337	351 0	1,060	2,363	1,028	333
Last resort	0	0	4	22	32	89	542	309	13
Overnight	0	0	0	0	0	0	1,040	317	9
Tolar bill based	n.a.	435	301	315	319	971	781	402	311
Repurchase of foreign exchange bills	5,179	3,739	8,004	3,541	2,810	7,138	16,795	23,304	11,666
BoS bills	369,313	377,075	393,047	398,878	390,211	375,057	367,244	347,404	331,513
Tolar bills	58,388	62,102	56,566	70,769	78,944	66,045	45,901	39,481	19,381
Twin bills	51	1,292	108	2,442	2,307	6,127	4,279	1,028	711
Bills with warrants	17,349	23,469	31,342	25,273	20,374	22,178	31,065	18,005	14,077
Foreign exchange bills	293,525	290,212	305,031	300,394	288,586	280,707	285,999	288,890	297,344
Government deposits	9,000	5,303	1,570	54	0	1,065	3,134	2,394	1,390
Reserve requirements	54,589	56,292	59,913	64,119	67,932	72,274	74,677	78,722	52,452
Purchase of foreign exchange		6,066	27,550	27,445	5,195	8,282	8,958	14,794	1,114
Sale of foreign exchange		9,521	5,847	2,747	16,224	3,538	41,527	25,274	1,755

Source: Bank of Slovenia.

1/ Quarterly average daily balances.

Figure 5. Slovenia: Interest Rates



Source: Bank of Slovenia.

1/ Average of lending rates on capital loans and consumer credits.

2/ Average of deposit rates with maturities ranging from 30 days to over a year.

3/ First issued in September 1996.

4. Differential between short-term deposit rates in Slovenia and Germany; the uncovered differential is adjusted for the one-month ahead change in the SIT/DEM exchange rate.

to the beginning of the year. At the same time, during the liquidity pressures preceding the introduction of the VAT in June 1999, the BoS provided short-term loans to the banking system and accommodated banks' demand for liquidity by providing recourse to the overnight lending facility.

30. The BoS continued its program of de-indexation of its short-term monetary instruments—begun in 1995 with the de-indexation of all instruments with less than one-month maturity—by issuing, in September 1999, a 270-day bill bearing a nominal interest rate. Three-month Treasury bills issued by the government are also de-indexed, and 6-month Treasury bills were issued for the first time in October, also bearing a non-indexed interest rate. However, bank deposit and lending rates remain indexed to past inflation (through the TOM, the base interest rate calculated as the average of the past 12-month inflation, over which a separate real component is added), but the announced abolition in January 2001 of the accounting rule requiring banks to report the revaluation clause in their balance sheets should accelerate the process of de-indexation of the economy.

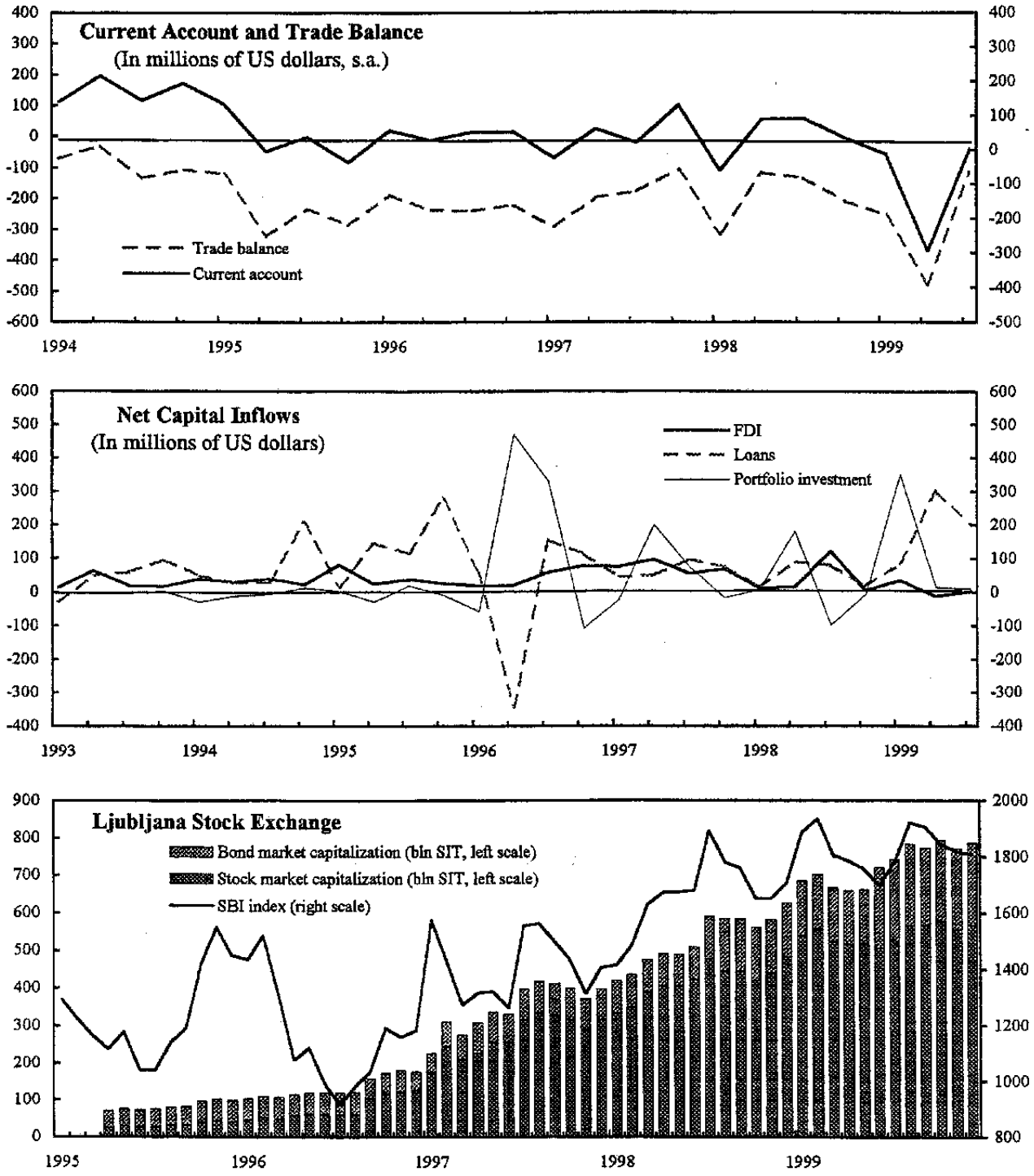
D. External Sector

Current account

31. Slovenia enjoyed a roughly balanced external current account position until 1999. In 1997, as external demand picked up and the competitiveness of the Slovenian economy improved, exports surged more than 11 percent in real terms, and the trade deficit shrunk by ½ percent of GDP, but the current account remained broadly in balance as the surplus in services declined (Figure 6). Slovenia's good external performance continued in 1998. Real export growth was strong (7 percent), and market penetration in trading partner countries continued. In addition, the terms-of-trade improved, as import prices declined more than the prices of Slovenia's exports. However, imports of investment goods surged by almost 20 percent due to the increase in domestic capital formation. As a result, the trade deficit and the current account balance remained at roughly the same level as in the previous year.

32. The current account moved for the first time into deficit in 1999. Some of the factors that led to the deficit were temporary. Of these, the most important was the weak demand from Slovenia's major trading partners in the EU: in the first seven months of 1999, exports to these countries did not grow at all in U.S. dollar terms, compared with the same period in 1998. The impact of other regional crises compounded the deficit: exports to Russia fell to almost half of their volume a year ago to 1½ percent of total exports; and trade with Croatia, which constituted close to 10 percent of total exports until 1998, deteriorated substantially (exports fell by close to 20 percent). On the import side, the anticipated introduction of the VAT in July triggered a sharp increase in imports of consumption and investment goods in the first half of the year. Other factors that led to the emergence of a current account deficit were permanent. In particular, changes in the trade policy mandated by EU agreements have lowered import tariffs, reduced the scope for cross-border trade (especially in fuel), and eliminated duty free shops. These factors boosted imports and reduced revenues from services. Moreover, tourism expenditure of

Figure 6. Slovenia: Balance of Payments and Capital Markets



Sources: Bank of Slovenia, Ljubljana Stock Exchange, and IMF staff calculations.

Slovenes, especially in Croatia, has been increasing steadily (this was partially compensated by income from Slovenian enterprises that cater to the tourists in Croatia). As a result of these temporary and permanent factors, the current account deficit swelled to 5 percent of GDP in the first half of 1999. In the second half of 1999, however, most of the temporary factors were reversed: the EU entered an economic upturn; the Kosovo crisis ended; and imports dropped sharply. Also, the depreciation of the tolar throughout 1999 helped the trade balance. Thus, for the year as a whole, the current account deficit is estimated to have been about 2½ percent of GDP.

33. The impact of the Kosovo crisis on the balance of payments was very small. It was felt mostly through two channels: declining tourism revenues in the second quarter of 1999, and rising service receipts owing to increased activity in Port Koper, as companies transported goods through this port as an alternate to land routes through Yugoslavia. Otherwise, trade was not directly affected by the conflict, because Slovenia's trade with the republics of former Yugoslavia is small (except for Croatia), and the transportation of Slovene goods to other destinations does not depend on transit routes through Yugoslavia. Moreover, there was no discernible impact on investor sentiment and on FDI.

Capital account

34. After a surge in 1997, foreign direct investment inflows declined in 1998. Net FDI flows were US$295 million in 1997 (1½ percent of GDP), double their level in the previous year. But in 1998, FDI inflows were halved relative to 1997, despite much higher privatization revenues. (This was in part because most privatization deals were management-employee buyouts, and thus did not stimulate the inflow in foreign capital.)

35. In response, the government set up an Inter-Ministerial Working Group for Encouraging Foreign Direct Investment, and in 1999 the Trade and Investment Promotion Office started to implement measures to promote FDI. The measures included better access to industrial sites; incentives to raise employment that foreign investors can also benefit from; free investment services provided to foreign investors; and a greater public relations effort. However, in the first eleven months of 1999, FDI still was only a fraction (US$38 million) of the level reached during the same period the previous year (US$139 million). Meanwhile, outward FDI more than tripled to US$39 million for the same period, directed mostly toward Croatia.

36. Other financial flows were less important until the capital restrictions were relaxed in 1999. The capital controls imposed during 1996–99 (see Box 3) had had significant effects on the structure of external liabilities. Bank borrowing abroad, in particular, which had been rising during the previous two years, was abruptly cut to negligible levels in 1997 owing to the prohibitive costs implied by the capital controls. After the controls were relaxed in 1999, such borrowing was revived (in the first eleven months of 1999, loans to banks increased by US$232 million, against US$35 million the year before). Loans taken by enterprises followed a similar pattern. Moreover, portfolio investment during 1997–98 was lower than what could be expected based on developments in FDI: in 1997, FDI increased by 73 percent but portfolio investment

declined by 63 percent. There were signs that this pattern was also in the process of being reversed after the removal of the restrictions in 1999. Overall, however, the relaxation of capital controls in 1999 did not appear to have had a major immediate impact on the capital account.

External debt and trade issues

37. Slovenia's external indebtedness has remained moderate. Total external debt increased by around US$0.8 billion in 1998 (to 45 percent of GDP), and another US$0.5 billion in the first eleven months of 1999. Roughly half of this additional debt was private. The total external debt-to-exports ratio, which has been increasing since 1993, continued on the same trend. At the same time, the ratio of international reserves to total debt dropped below 60 percent in the third quarter of 1999, as a result of the drop in reserves.

38. Paris Club debt negotiations have been completed with most countries, and debt payments have begun. Total outstanding debt as of September 1999 to five members of the Paris Club amounted to US$54 million. The bulk of this, US$43 million, was to Germany. Agreements with Italy and Norway have not yet been ratified, but basic principles have been agreed. On the other hand, the negotiations on determining Slovenia's share in some US$80 million of exit bonds issued by the former SFRY as part of the 1988 New Financing Agreement have remained stalled.

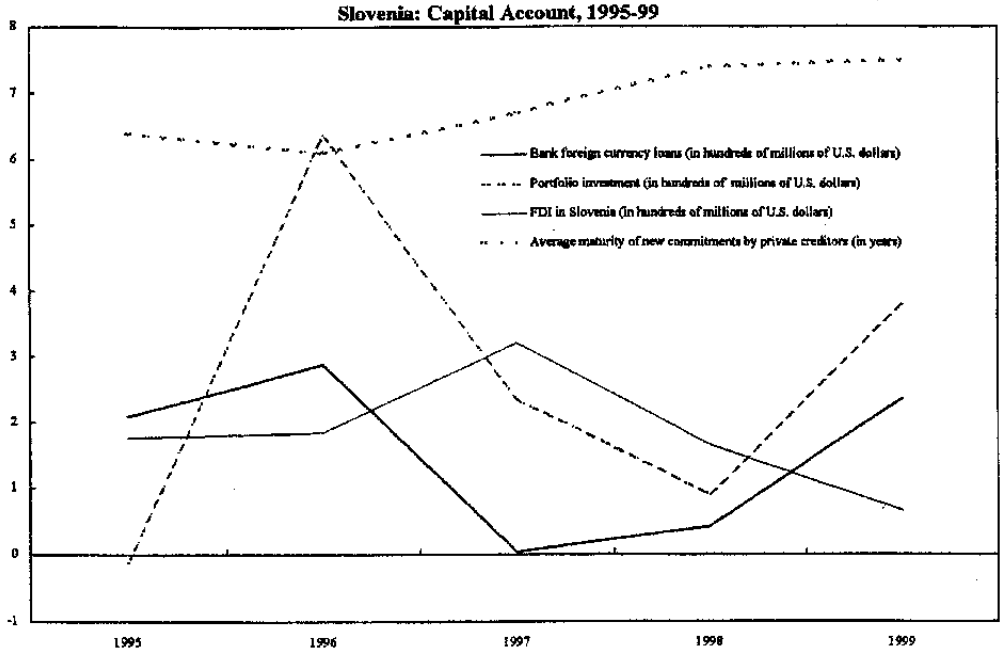
39. Regarding trade policy, the schedule of trade liberalization consistent with the EU directives is on track. Slovenia is already to a large extent in conformity with the *Acquis* on External Relations and Development Aid. Full liberalization of trade with the EU will take place by end-2001, and trade with third countries will converge to the EU rules by end-2002. However, the convergence of Slovene agricultural policy to that of the EU is still an outstanding issue (Slovenia satisfies the WTO rules on agriculture).

40. On multilateral agreements, since Slovenia became a member of the WTO in 1994, it has complied with all associated tariff and other obligations. Quantitative restrictions remain in the agricultural sector and the textile industry, but, as dictated by the WTO, these are to be abolished by 2005. The CEFTA agreement is on track without any changes. Slovenia has not signed the Trade in Information Technology Agreement yet, but it is expected to do so well ahead of EU accession. Slovenia ratified the Fifth Protocol of the General Agreement on Trade in Services in June 1999. Besides these agreements, Slovenia has 32 bilateral trade agreements, with an additional one waiting to be ratified by the Turkish parliament.

Box 3. Capital Controls 1996–98

The capital account restrictions imposed during 1996–98 had a major impact on the structure of capital inflows and foreign liabilities. Faced with strong and increasing capital inflows (see figure), the BoS imposed broad restrictions aimed at bank borrowing abroad and portfolio investment in Slovenia. First, the BoS imposed a balancing requirement on foreign exchange accounts, which froze banks' net foreign positions as of end-July 1996. At the same time, the 40 percent interest-free deposit requirement imposed in 1995 on short-term loans taken abroad by residents was extended to include loans with maturities up to 7 years. Later, in February 1997, all nonresident portfolio transactions were required to be channeled through custodian accounts that were bound by the balancing requirement. In June 1997, this restriction was relaxed marginally by exempting from the balancing requirement portfolio investment with a commitment of more than seven years. The definition of portfolio investment was also kept very broad, including any transaction that would result in less than 50 percent of total ownership of an enterprise. After the introduction of the restrictions, the BoS frequently had to adjust the regulations to ensure the restrictions were not circumvented.

Slovenia: Capital Account, 1995-99



In 1999, in accordance with the Association Agreement between Slovenia and the EU, the BoS relaxed most of these restrictions, as well as others that had been introduced earlier. In particular, incentives to borrow abroad were partially restored, with remaining disincentives targeted more to shorter maturities. In February, the BoS removed the balancing requirement on foreign exchange liabilities of banks, abolished the non-interest bearing deposit on foreign loans, and allowed banks to take short-term loans abroad and individuals to contract loans with nonresidents. In addition, the definition of portfolio investment was narrowed to those transactions that would affect less than 10 percent of total ownership of an enterprise, and to those with less than 4 years commitment. Banks were obliged to purchase options at a premium in an amount equal to the balance on the custodian accounts, to be exercised only in case of foreign exchange outflow from the custodian accounts. In September, the BoS reduced further the capital controls on portfolio investment to those with less than 1 year maturity. Certain other restrictions remain: resident natural persons are prohibited from maintaining accounts and purchasing securities abroad. In addition, the BoS preserves its right to impose capital account controls for a period of up to six months if the objectives of monetary and exchange rate policies are threatened.

II. The Impact of Productivity Differentials on Inflation and the Real Exchange Rate: An Estimation of the Balassa-Samuelson Effect in Slovenia[1]

A. Introduction

41. For a small open economy seeking early accession to the European Union, like Slovenia, two related sets of economic indicators are particularly important: on one hand, indicators of domestic inflation and the exchange rate, and on the other, the real exchange rate. The nominal indicators are of interest because during the process of accession to EU and EMU, Slovenia's economic performance will be assessed in part on the basis of its inflation record and nominal exchange rate stability. The real exchange rate as a measure of competitiveness is of central importance for the performance of an economy with an export-to-GDP ratio of more than 50 percent.

42. These indicators are affected by various underlying economic factors, and policymakers need to distinguish between these in order to adopt the appropriate response in each case. Inflation, as well as nominal and real exchange rate changes, may be driven by demand side effects that need to be corrected to maintain macroeconomic stability, but may also be the result of equilibrium developments on the supply side, in which case policy interference would be unwarranted. If policy measures are taken, they would also have a second-round effect on these indicators.

43. The following analysis will attempt to shed light on the extent to which changes in inflation and exchange rates in Slovenia can be attributed to equilibrium supply-side factors, namely productivity differentials between the traded and nontraded goods sectors. It employs the Balassa-Samuelson framework, which links differential productivity growth rates in the two sectors to changes in the price of nontraded goods relative to traded goods. These changes affect the overall price level and, to the extent that productivity growth differentials vary between countries, also the price of domestic relative to foreign goods, i.e., the real exchange rate. As these inflation and real exchange rate fluctuations reflect underlying changes in the structure of production, policy interventions to correct them would be unnecessary and, ultimately, unproductive.

44. While there have been a number of studies on the Balassa-Samuelson effect in developed economies, the existing body of literature on this effect in transition economies is very small. De Gregorio, Giovannini, and Wolf (1994) show evidence of the Balassa-Samuelson effect in OECD economies, but also identify demand-side effects as significant for the price of nontradables. Similarly, De Gregorio, Giovannini, and Krueger (1994) analyze the major European economies and find support for the hypothesis that productivity differentials affect relative prices and the overall price level, in addition to demand-side factors. Alberola-Ila and Tyrväinen (1998) analyze productivity differentials among countries in the EMU area, and suggest that these would *certeris paribus* lead to inflation differences of the order of

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[1] Prepared by Philipp C. Rother.

2 percentage points (although actual differences in inflation are to some extent moderated by sectoral wage differentials). These results are broadly confirmed by Swagel (2000), who covers the longest time period (1960 to 1996) for a similar country set. For transition economies, on the other hand, one of the few analyses is Jakab and Kovács (1999), who find strong support for the Balassa-Samuelson effect in Hungary for the period 1992 to 1998.

B. The Balassa–Samuelson Effect

The model

45. The basic model is one of a small open economy producing traded and nontraded goods with the following sectoral production functions (see Froot and Rogoff, 1995):

$$Y_T = A_T L_T^{\gamma} K_T^{1-\gamma} \tag{1}$$

$$Y_N = A_N L_N^{\delta} K_N^{1-\delta} \tag{2}$$

where Y denotes output, and A, L, and K stand for productivity, labor, and capital, respectively with the subscripts T and N indicating the traded and nontraded sector. Capital is mobile internationally, as well as between sectors. With perfect competition in both sectors, profit maximization equalizes the international real interest rate R with the marginal product of capital in the two sectors:

$$R = (1-\gamma) A_T \left(\frac{K_T}{L_T} \right)^{-\gamma} \tag{3}$$

$$R = P(1-\delta) A_N \left(\frac{K_N}{L_N} \right)^{-\delta} \tag{4}$$

with the price of tradables set equal to one, and P denoting the price of nontradables relative to tradables (P_N / P_T). As the interest rate determines the capital-labor ratio in the traded goods sector, the real wage in that sector is uniquely determined by the marginal product of labor:

$$W_T = \gamma A_T \left(\frac{K_T}{L_T} \right)^{1-\gamma} \tag{5}$$

Labor mobility ensures that wages are equalized across sectors,

$$W = W_T = \frac{W_N}{P_N} = \delta A_N \left(\frac{K_N}{L_N} \right)^{1-\delta} \tag{6}$$

so that the system can be solved for the relative price of nontradables. In particular, the price ratio is determined by relative productivities and sectoral production elasticities:

$$p = p_N - p_T = \frac{\delta}{\gamma} a_T - a_N \tag{7}$$

where lower-case letters indicate logarithms.

46. Equation (7) reflects the central Balassa-Samuelson hypothesis, namely that differences in sectoral productivities determine the relative price of nontraded goods. The effect comes about through capital mobility and the equalization of sectoral wages due to the mobility of labor. The wage in the traded goods sector is determined by the marginal product of labor. As the wage is the same for labor in the nontraded goods sector, if labor productivity is lower there, the wage exceeds the marginal product of labor in that sector and drives up the relative price. The higher the sectoral productivity differential, the higher the relative price of nontradables. The impact of the productivity differential on the relative price is directly proportional if the labor elasticities in the production functions are equal (i.e., $\delta = \gamma$); with a higher labor elasticity in the nontraded sector, however, the effect is enhanced, and even equal sectoral productivities induce a positive price differential.

47. Looking at first differences yields inferences about the inflationary impact of differential productivity growth rates. The change in the overall price level in the economy can be presented as the sum of the changes in the price levels of traded and nontraded goods, weighted by the respective output shares

$$\pi = \sigma \dot{p}_N + (1-\sigma)\dot{p}_T = \dot{p}_T + \sigma \dot{p} \tag{8}$$

where π represents inflation and σ the share of nontraded goods in total output, and a dot indicates the change over time. According to equation (8), domestic inflation is given by the price change in traded goods, which in a small open economy is exogenously determined on the world market; and the change in the relative price of the nontraded goods, which is driven by the differential growth rates in sectoral productivities.

48. Given the underlying assumptions of capital mobility and purchasing power parity for traded goods, it is possible to trace international inflation differences to the differences between the respective sectoral productivity growth rates in the individual countries. Assuming, for simplicity, that the output share of nontraded goods is equal across countries, the inflation differential between two countries is driven by the difference in the growth rates of the relative domestic price of the nontraded good

$$\pi - \pi^* = \sigma(\dot{p} - \dot{p})^* \quad (9)$$

where an asterisk indicates the foreign country variables. According to equation (9), the country with the larger sectoral productivity growth differential will experience faster inflation.

49. This international aspect of the Balassa-Samuelson effect can be used to analyze the difference in inflation experiences among countries. Assuming that productivity growth in the traded goods sector exceeds that in the nontraded goods sector, and that the productivity growth differential is higher in less developed countries than in developed ones, the Balassa-Samuelson effect predicts that inflation in a less developed country would exceed that in its more developed counterparts. This difference would also explain the appreciation of the real exchange rate in CPI terms.

50. The productivity effects described above are of particular relevance for transition economies, and this makes the assessment of their precise impact on inflation and exchange rates imperative. However, it should be noted that, given its focus on the supply side, the Balassa-Samuelson model can only be used to assess long-term equilibrium movements. This poses a problem for the analysis of transition countries, in which market forces have been determining prices for a relatively short time, and a long-run equilibrium may yet have to be reached. In the short term, the assumptions on labor and capital mobility may not hold, making the actual outcome also dependent on demand-side factors. This means that the results of the empirical analysis should be interpreted with caution.

The data

51. The availability of data for Slovenia imposes a number of constraints on the empirical analysis, the most important being the lack of reliable estimates of total factor productivity. Although this is the variable of interest according to the theoretical framework, its computation depends on sectoral data for the capital stock, which are not available for the time period under consideration. As a consequence, labor productivity is used to approximate total productivity in this paper.[2] This introduces a bias in the estimation to the extent that capital-labor ratios change at different speeds in the tradable and the nontradable sectors. In particular, a faster increase in the capital-labor ratio in the tradables sector than in the nontradables sector reinforces the effect of faster total factor productivity growth on the real exchange rate, while a slower increase would dampen it.

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[2] This substitution has been used in other research, and may be warranted for other reasons, too. For instance, Alberola–Ila and Tyrväinen (1998) justify their use of labor instead of total factor productivity in part on the grounds of implausible results using the latter, owing perhaps to problems in measuring the capital stock in the service sector.

52. A further constraint relates to the definition of tradable goods. Ideally, the assessment of tradability should be based on the analysis of individual goods; earlier studies employed, for example, the export share of individual sectors as an indicator for tradability.[3] This study will instead rely on a broader distinction of the two sectors. Given that around 90 percent of Slovenia's exports are manufactured products, tradable output is defined as that produced in the manufacturing sector, while nontradable output is the remaining. Again in line with earlier contributions—and to facilitate comparisons with those results—agriculture is excluded from the study, as agricultural markets in Slovenia and trading partner countries are to a large extent distorted by state intervention.

53. The period of analysis is 1993 to 1998. Quarterly output data for Slovenia are only available in constant prices. Using annual data, quarterly series in current prices were derived in the following way: for tradables, constant price output was inflated using the quarterly producer price index for the manufacturing sector. For nontradables, it was assumed that the price was driven to a large extent by labor costs. Consequently, quarterly figures for labor productivity at constant prices in the nontradable sector were derived by assuming smooth transition between the annual observations. These were then employed to imply a quarterly pattern for the behavior of nontradable output in current prices. All series were found to be stationary over the observation period.

The facts and international comparisons

54. To give a feel of the magnitude of the effects under investigation, this section presents the results of a model simulation for Slovenia, as well as for three other transition economies, the Czech Republic, Estonia, and the Slovak Republic.[4] The results suggest that, despite their similar position as relatively successful transition economies, the four countries differ significantly with regard to the magnitude of the Balassa-Samuelson effect.

55. Figure 7 presents the simulated and observed behavior of the ***relative price of nontradables***. To derive the former, the calculated (labor) productivities and the sectoral labor shares, reflecting factor elasticities in the production function, were inserted into equation (7), yielding the sectoral price differential predicted purely based on productivity differentials. If the Balassa-Samuelson model holds, the two series should move in unison in the long run. In fact, the observed relative price of nontraded goods, represented by the solid line in the chart, rises by 20 percent between 1993 and 1998, and during the same period the predicted value increases by 23 percent. This provides *prima facie* evidence that, in the long run, the relative price of nontradables is indeed linked to changes in productivity. Indeed, it appears that the underlying productivity effects were stronger than suggested by the observed change in the relative price of nontradables. Looking at individual years, the observed and the

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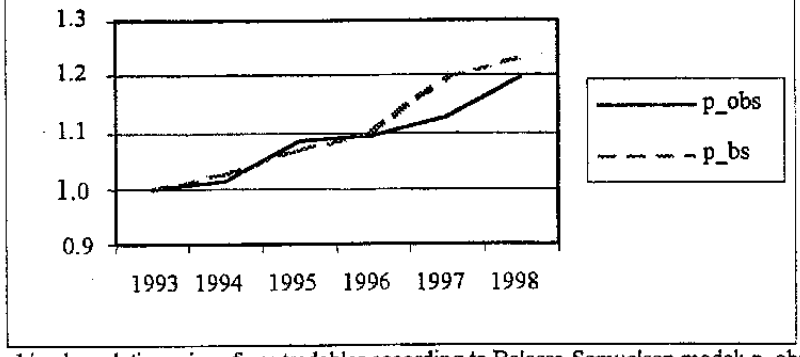
[3] See, for example, de Gregorio, Giovannini, and Wolf (1994).

[4] The choice of the comparator countries is mainly based on the availability of data.

predicted series move closely together between 1993 and 1996. For 1997, the predicted price increases more sharply than the actual, while this pattern is reversed in 1998.

Figure 7. Relative Price of Nontradables 1/

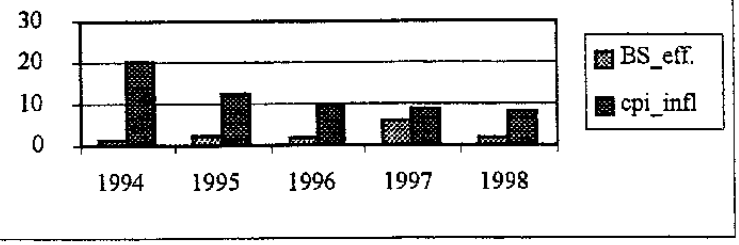


1/ p_bs: relative price of nontradables according to Balassa-Samuelson model; p_obs: observed price of nontradables.

56. The contribution of the Balassa-Samuelson effect to ***domestic inflation***, simulated on the basis of equation (8), appears to have increased over time (Figure 8). CPI inflation decreased monotonically, but with diminishing speed, between 1994 and 1998. At the same time, the average absolute inflation impact of sectoral productivity differentials amounted to 2.6 percent per annum, with a marked spike in 1997. This suggests that the share of productivity-induced inflation has increased over time, and that it may become increasingly difficult to reduce inflation to EU levels if the productivity differentials persist.

Figure 8. Balassa-Samuelson Effect and Inflation 1/

(in percent)

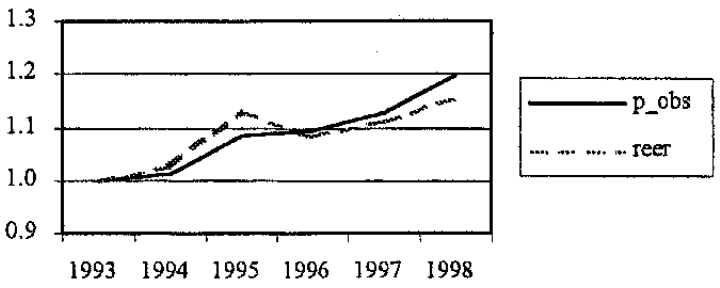


1/ BS_eff.: Balassa-Samuelson effect on inflation.

57. The Balassa-Samuelson effect causes an appreciation of the ***CPI-based real exchange rate*** to the extent that the sectoral productivity growth differential in the domestic country exceeds that abroad. Figure 9 shows how Slovenia's real exchange rate relative to its four

largest trading partners (Germany, Italy, Austria, and France) has moved compared to the domestic relative price of nontradables. Theoretically, the difference between the two variables represents the impact of the Balassa-Samuelson effect on inflation in the partner countries, i.e., with differential productivity growth of their own, those countries also experience supply-side inflation that has a dampening effect on their own CPI-based real exchange rate. Over the observation period, the difference in the appreciation of the two indicators amounted to roughly 4 percentage points, indicating that the Balassa-Samuelson effect in Slovenia's main partner countries amounted to a weighted average of less than 1 percent. This finding is in line with the results of Alberola-Ila and Tyrväinen (1999). It should be noted, however, that this finding is tentative and should be interpreted cautiously, as the difference is likely to be influenced by several additional factors over such a short period of time.

Figure 9. Relative Price of Nontradables and Real Exchange Rate 1/

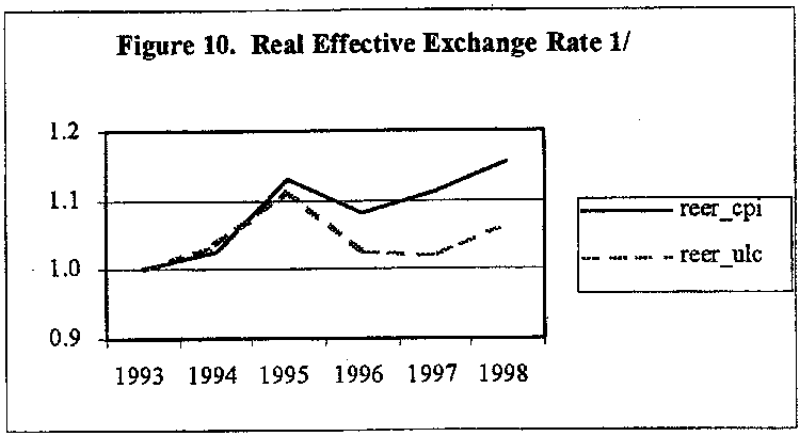


1/ reer: real effective exchange rate; p_obs: relative price of nontradables.

58. On the basis of the preceding discussion, Figure 10 leads to the tentative conclusion that Slovenia's ***competitiveness*** has remained stable during the observation period, despite the appreciation in the CPI-based real exchange rate. As the Balassa-Samuelson effect reflects long-run productivity changes between sectors, the resulting inflation and real appreciation should not be viewed as a loss of competitiveness. Rather, the analysis of competitiveness in the traded goods sector should focus on production costs in that sector. The real exchange rate based on unit labor costs (ULC) represents one common tool for this analysis, as it captures a large part of those costs. In the case of Slovenia, the divergent behavior of the CPI-based real exchange rate and the ULC-based real exchange rate supports the view that the

former is indeed driven by differential productivity growth and that underlying competitiveness has not deteriorated.[5]

Figure 10. Real Effective Exchange Rate 1/



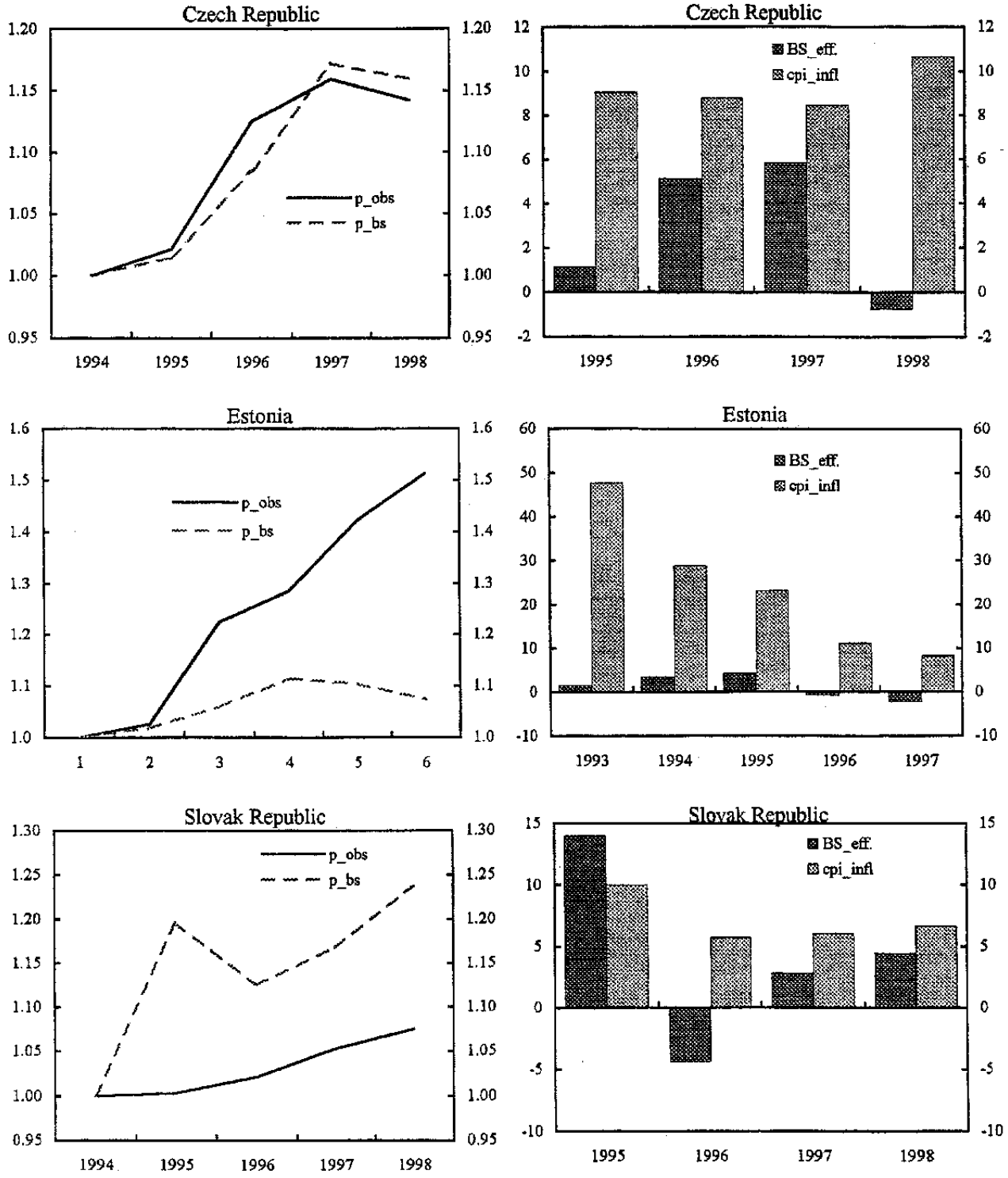
1/ Reer_cpi, reer_ulc: CPI and ULC band real effective exchange rate.

59. While the simulation points to a relatively strong impact of the Balassa-Samuelson effect in Slovenia, evidence from other transition economies suggests a considerable variance in its size. As can be seen from Figure 11, the impact of the Balassa-Samuelson effect in the Czech Republic appears to be broadly similar to that in Slovenia. The observed relative price of nontradables increased by some 14 percent since 1994, while the theoretical model predicts a slightly higher increase of around 16 percent. The decrease in both variables in 1998 suggests business cycle effects: a drop in manufacturing output resulted in a decrease in labor productivity, which was in turn reflected in a lower expected price of nontradables. The contribution of the productivity differentials to domestic inflation is higher in the Czech Republic than in Slovenia, which may in part be explained by the former's more pronounced disinflation earlier in the transition process.

60. The data for Estonia and Slovakia show striking differences between the theoretically predicted and observed relative price of nontradables. In Estonia, the impact of the Balassa-Samuelson effect appears to be very limited, suggesting that other factors have been driving the relative price ratio. This is also reflected in the low contribution of the productivity differentials to domestic inflation. A potential explanation lies in the relatively low valuation of the kroon when Estonia entered into its currency board agreement, which resulted in a subsequent real appreciation through price increases of nontraded goods. Slovakia exhibits the opposite characteristics: the theoretical model overestimates the change in the price of

[5] It should be noted that, as the CPI-based real exchange rate reflects changes in total factor productivity while the ULC-based indicator is based on labor productivity, the divergent behavior could also be caused by stronger changes in the capital-labor ratio in the domestic country, while total factor productivities remain equal.

Figure 11. Relative Price of Nontradables and Inflation
in Other Transition Economies



Note: Symbols as in preceding text figures.

nontradables significantly, and points to a high, but variable, contribution of productivity differentials to inflation.

Estimation

61. The simulation of the model suggests that productivity differentials do indeed explain the increase in the relative price of nontradables. A first step in the empirical verification is to estimate the pure Balassa-Samuelson model with quarterly data. Estimating equation (7) yields the following:

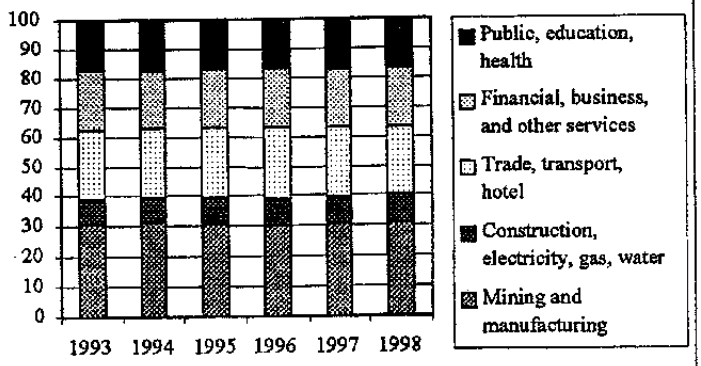
$$p = \underset{\substack{-0.19 \\ (5.30)}}{\beta_0} + \underset{\substack{0.51 \\ (4.90)}}{\beta_1 p_{-1}} + \underset{\substack{0.55 \\ (4.82)}}{\beta_2 a} + \varepsilon \qquad (10)$$

where a equals the right hand side of equation (7), i.e., $a = (\delta / \gamma)\, a_T - a_N$.[6] The use of quarterly data results in autoregessive residuals, which is addressed through the inclusion of a lagged endogenous variable; specification tests indicate no violations of regression assumptions; seasonal dummies are not reported. The numbers below the regressors are the coefficients, and t-values are presented in parentheses. The long-run elasticity of the relative price of nontradables with regard to productivity differentials is given by $\beta_2/(1-\beta_1)$ and is equal to 1.1, i.e. slightly higher than expected from the theory, and in line with the results of the simulation.

62. While the results of both the simulation and the regression show a strong influence of the productivity differential on the relative price of nontradables, additional factors may also play a role. One indication of this is that the long-run estimated parameter of the productivity differential exceeds one. Furthermore, the behavior of the structure of output provides some preliminary evidence that supply-side effects are not the only driving factors behind the price ratio: in the absence of other influences, the Balassa-Samuelson effect alone would drive up the share of tradable goods in total output. However, as Figure 12 shows, the share of tradables in Slovenia's output has remained stable during the observation period, as has, indeed, the entire output structure.

[6] Estimations were run with the variables in levels. Using first differences did not change the results.

Figure 12. Structure of Output 1/
(in percent)



1/ Excluding agriculture.

63. If sectoral labor and international capital mobility do not hold in the short run, demand factors and differences in the speed of price adjustment between the two sectors can also have an impact on the relative price of nontradables. This suggests extending the set of explanatory variables in equation (10). The first variable to be included is an indicator of ***monetary policy***, which may, through its effect on the nominal exchange rate, affect the relative price of nontradable goods. With tighter monetary policy, the nominal exchange rate has a tendency to appreciate. While the immediate effect of the tightening on the nontraded goods sector may be small, the traded goods sector has to adjust its prices to keep them at the internationally given level, inducing an upward tendency in the ratio between the two prices.

64. ***Fiscal policy*** can affect the relative price ratio through two channels: its impact on the structure of total demand, and its impact on the exchange rate. Regarding the first, assuming that the share of nontraded goods in total demand is higher in the public than in the private sector, an increase in public expenditures should induce an upward bias in the price of nontraded goods. The exchange rate effect of fiscal policy, on the other hand, is similar to that of monetary policy: looser fiscal policy would lead to a weakening of the exchange rate and a lower relative price of the nontraded good.

65. Finally, the ***level of income*** may also affect the relative price of nontradeables. It has been observed that in richer countries, total demand is more geared toward nontraded goods, implying that preferences shift with rising income levels. Consequently, rising income levels may increase the relative demand for nontradables and push up their relative price.[7]

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[7] Other studies found sectoral wage differences significant in determining the relative price of nontradables. In Slovenia, however, sectoral wages behaved practically identically during the observation period.

66. In order to capture the impact of these factors, the following variables have been added to the original regression equation. Monetary policy is captured by the change in the monetary base; the fiscal policy variables are the expenditure-to-GDP ratio (measuring government demand) and the deficit-to-GDP ratio (to capture the exchange rate effect). Income is measured by per capita GDP. Including these variables, the econometric results are as follows:

$$p = \underset{\substack{-0.04 \\ (-0.66)}}{\beta_0} + \underset{\substack{0.61 \\ (8.04)}}{\beta_1 p_{-1}} + \underset{\substack{0.40 \\ (4.67)}}{\beta_2 a} + \underset{\substack{-0.12 \\ (-3.03)}}{\beta_3 db} + \underset{\substack{0.46 \\ (3.00)}}{\beta_4 exp} + \varepsilon \qquad (11)$$

where *db* stands for the percentage change in the monetary base and *exp* represents the expenditure to GDP ratio. Tests for specification errors remain insignificant. The long-run elasticities are 1.0 for the productivity differential, –0.3 for changes in the monetary base, and 1.2 for the expenditure-to-GDP ratio. The parameters for fiscal deficit and per capita income come out insignificant and, thus, appear not to affect the relative price of nontradables. This suggests that the exchange rate impact of the fiscal deficit was small and/or outweighed by monetary policy. Including current and lagged values of per capita income resulted in significant parameters in some specifications, but with the coefficients summing up to zero, implying that changes in income have only a transitory effect on the relative price of nontradables.

67. The results show that, in addition to productivity differentials, monetary and fiscal policies appear to have had a significant impact on the relative price of nontradables in the period under observation. The long-run elasticity of the price ratio relative to productivity changes is now equal to one, fully in line with the prediction of the Balassa-Samuelson model. As expected, monetary tightening is associated with an increase in the relative price of nontradables, as is an increase in public expenditures. Regarding the latter, a one percentage point increase in public expenditures induces a 1.2 percent increase in the price of nontradable goods, a result broadly in line with findings for OECD countries (see de Gregorio, Giovannini, and Wolf, 1994). Nevertheless, the long-run net effect of the monetary and fiscal variables is negligible, since, as shown in equation (10), productivity differentials explain the full increase in the price of nontradables during the observation period. This is a consequence of the practically unchanged level of the two variables during the observation period.

C. Conclusion

68. Both the simulation and the econometric analysis support the Balassa-Samuelson hypothesis for Slovenia. The long-run trend in the CPI-based real exchange rate appears to be fully explained by sectoral productivity differentials. In the short run, monetary and fiscal policies are also found to have had an impact on the relative price ratio between tradables and nontradables. Their longer-run impact, however, is unclear as the monetary and fiscal policy variables fluctuated around relatively stable means over the observation period.

69. From a policy point of view, the results suggest that inflationary pressures owing to differential productivity growth rates are present and likely to continue. With regard to EU accession, this points to a potential conflict. Were the nominal exchange rate to be fixed, Slovenia would have to expect higher CPI inflation and an equilibrium real appreciation, as long as differential productivity growth continues. The estimates suggest a productivity-induced inflation differential between Slovenia and the EU of 1½–2 percentage points, which is substantially higher than the equivalent 1.2 percentage point estimate for Greece (Swagel, 2000). This result is based on the estimated 2.6 percentage point contribution of the Balassa-Samuelson effect to domestic inflation in Slovenia, and a rough estimate of the same effect in the core European countries of around 0.8 percentage point. If, on the other hand, the exchange rate were to remain flexible, Slovenia could lower inflation to the EU average, but would then likely have to face an equilibrium nominal exchange rate appreciation.

70. Some caution in interpreting the above results is warranted. First, the relatively short observation period and the lack of some data, e.g., on the capital stock, leave some uncertainty regarding the robustness of the results. Second, if the different sectoral productivity growth rates persist, they can be expected to result in a gradual shift of the output structure, which apparently did not occur during the observation period. Finally, other important developments in the economy that may well have had an impact on the variables under study remained outside the analysis. For example, the analysis of the impact of price liberalization on the price ratio may provide further useful insights. The direction of the impact, however, is uncertain, because the initial inflationary impact of price liberalization in some goods may be offset over time by low subsequent price increases in a market-determined environment, as well as the dampening impact on inflation of the liberalization of certain overly high administered prices.

III. Monetary Policy in Slovenia During the Late 1990s: Dilemmas and Tradeoffs[1]

A. Introduction

71. The official objectives of the Bank of Slovenia (BoS) are to lower inflation to EU levels and ensure the stability of the currency. The BoS has been pursuing these objectives in a framework of monetary targeting and a floating exchange rate. Within the context of this framework, however, for the best part of the 1990s, the BoS paid considerable attention to and expended significant effort in managing the level and variability of the nominal exchange rate. This was due to two reasons. First, the small size and openness of the economy (total trade represents well over 100 percent of GDP) means that the exchange rate is a key determinant of domestic inflation and—through its effect on competitiveness—growth. And second, especially in the early years of transition (and, to a lesser extent, still today) the conduct of monetary policy in Slovenia was hampered by significant structural constraints, such as a relatively shallow and distorted domestic interbank market, a high degree of currency substitution, and extensive indexation of wage and financial contracts. In these circumstances, the central bank could ill-afford a policy of "benign neglect" towards the exchange rate, because the other transmission channels of monetary policy were weak. Therefore, while eschewing explicit targeting, the BoS had to monitor closely and try to use the exchange rate in order to achieve its ultimate objectives.

72. Judged by its results, this pragmatic and eclectic approach was clearly successful. However, it also meant that, in designing and conducting its interventions, the BoS often found itself pursuing conflicting objectives: tight monetary conditions aimed at achieving lower inflation tended to lead to an appreciation of the currency, while exchange rate interventions aimed at preserving competitiveness tended to slow disinflation. To keep the balance between objectives, the central bank had to engage in second-round interventions and maintain a strong and continuous presence on the money market.

73. This chapter estimates a structural vector autoregression (S-VAR) representation of the BoS's approach to monetary policy. Rather than exploring the precise channels through which monetary policy decisions are transmitted to the rest of the economy, the focus here is on assessing the extent to which the interaction between the interventions aimed at disinflation and those aimed at the exchange rate reduced the efficiency of monetary policy in achieving any one of these objectives. From the perspective of each of its individual objectives, the BoS's continuous fine-tuning of its interventions was, to some extent, a self-defeating strategy, in that it made achieving any one of them much harder.

74. This analysis can hopefully make a contribution to the current re-appraisal of the monetary policy framework, which is prompted by the recent liberalization of capital

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[1] Prepared by Agnès Belaisch.

controls in 1999. The BoS has acknowledged that, in the new environment created after the liberalization, it will be more difficult to continue "business as usual" and maintain the same delicate balance between objectives, and has re-affirmed the primacy of its disinflation objective. The conclusions of this study support this choice: although greater focus on inflation is likely to generate greater exchange rate volatility than in the past, it would also impart an element of stability in the system and enhance the effectiveness of the BoS's interventions.

75. The next section sets the stage by discussing in some detail the context which has conditioned the design and conduct of monetary policy in the past few years. Section C estimates the structural vector autoregression model using monthly data over the period 1995-99. Section D summarizes the conclusions.

B. Slovenia: A Case Study of Monetary Policy in Transition

76. Monetary policy in Slovenia has been operating in an environment characterized by serious structural constraints. Some of these were caused by the process of economic transition, while others reflected the particular circumstances and history of Slovenia. These constraints molded the design and operative framework of monetary policy in the 1990s.

77. ***Banking system inefficiencies*** hampered the ability of the BoS to transmit monetary policy signals through financial markets and affect the savings-consumption decisions. After secession from the former SFRY in 1991, the Slovene banking system was concentrated, had lost part of its asset base[2] and, with the downturn in the economy, experienced a sharp deterioration of its loan portfolio (for more details see OECD, 1997). The rehabilitation of the banking system during the next few years resulted in a significant improvement of the financial position of the major Slovene banks, but brought about even greater concentration: the banking system became dominated by three large banks (two of which are mostly state-owned), with over 50 percent of assets and about 50 percent of the market for loans and deposits. Such concentration extended to the interbank market, where interest rates were determined largely by the liquidity needs of the largest players, thus limiting the ability of the central bank to regulate the banks' cost of funds through its liquidity interventions.

78. The lack of competition in the interbank market was exacerbated by a cartel agreement among banks on deposit rates, in place for most of the late 1990s. This was triggered by the aggressive behavior of certain smaller banks, who were seen (including by the supervisory authorities) as taking excessive risks by offering high remunerations to attract deposits in order to expand their lending base. In 1995, to pre-empt the emergence of systemic risk, the central bank sanctioned a "gentlemen's agreement" among banks fixing a

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[2] Slovene banks' foreign currency deposits placed at the former SFRY central bank were confiscated and assets held in other republics of the federation were frozen.

maximum interest rate on deposits. This agreement (abandoned in 1999) contributed further to disconnecting movements in market interest rates from changes in the liquidity position of banks in the interbank market.

79. Under these conditions, market interest rates could respond only slowly and erratically to changes in policy rates, thus failing to provide an efficient channel of transmission of policy decisions to the rest of the economy. A number of empirical studies have confirmed the weakness and long lags of the interest rate transmission mechanism. M. Kosak (1998) found that there was no evidence of a reaction of interbank rates to changes in base money supply. For the banking system taken as a whole, there was only a slow adjustment of lending rates to changes in the policy rate, and the response of lending rates differed across banks (T. Kosak, 1998). Borak (1998) found that deposit rates reacted passively to changes in lending rates, as banks sought to maintain their net interest margins.

80. The ***memories of hyperinflation*** under the SFRY and in the years around independence (inflation peaked at 13,000 per annum in late 1989) had a profound impact and, still to this day, limit the efficacy of monetary policy. First, this experience shook depositor's confidence in the domestic currency, leading to widespread currency substitution (the share of foreign currency deposits in broad money was over 50 percent in the early 1990s, and declined only very gradually to under 30 percent in 1998). Second, to reduce inflation in the early years, the government put under its control the prices of many basic goods.[3] Because of the various forms of price controls (at the wholesale and retail level), it is difficult to judge the precise extent of controlled prices in the economy; but, as a rough estimate, about a third of prices were administered up to 1997, and probably up to 20 percent over the following years until 1999.[4] Third, high inflation led to extensive indexation in the economy. To this day, interest rates for households and enterprises are quoted in real terms, and a separate, published revaluation clause is added to compensate for past inflation.[5] Indexation is also extensive in the labor market and, since 1995, economy-wide wage negotiations determine the degree of indexation of base salaries on past inflation (currently 85 percent).

81. The large share of administered prices and high degree of indexation, introduced at the early stage of transition to curb (or mitigate the effects of) inflation, ended up burdening the conduct of monetary policy. Indeed, compared to the initial drastic fall in inflation, it took

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[3] In 1991, the Law on Prices allowed the government to control the prices of a wide set of goods.

[4] See Čufer (1997) and Dronovec (1999).

[5] The number of previous months included in the revaluation clause, also called the *basic rate* (in Slovene TOM: *temejana obrestna mera*), was raised from one to three months in June 1995, to four months in February 1996, to six months in December 1996, and to twelve months in May 1997.

a much longer time—another 4 years—for inflation to fall into the single-digits. Administered price policy kept between a third and a fifth of prices outside the direct influence of the central bank's anti-inflationary policy, and backward-looking indexation mechanisms delayed the incorporation of lower inflation into prices and interest rates. Indexation of financial contracts also limited interest rate flexibility. First, the real interest rates on deposits and loans (especially given the lack of competition in the banking system) were determined primarily with a view to preserving banks' margins. And second, the indexation itself limited the response of interest rates to innovations in monetary policy, since forward-looking inflation expectations did not affect the level of interest rates. This meant that "real" lending rates (nominal rates minus the TOM) remained artificially high for most of the period. Figure 13 shows that in 1995, and again from mid-1996 to mid-1997, both actual and expected inflation (the latter derived from a regression of inflation on a time trend and 12 monthly lags) were higher than the TOM, and therefore "real" interest rates were kept at a higher level than market conditions justified.[6] In such conditions, the "real" interest rate did not reflect the real cost of capital.

82. Finally, Slovenia's increasing ***reliance on exports as the engine of growth*** amplified the sensitivity of a small economy to exchange rate movements. Thanks to the country's historically open position to international trade, a large share of GDP rapidly came to hinge on export performance at the same time as an increasing share of prices came to depend on exchange rate movements. Total trade (the sum of the exports and imports of goods and services) accounted for an average 115 percent of GDP each year after independence, and tradable goods prices represent at least 60 percent of the consumer price index.[7] Against this background, rising capital inflows in the mid-1990s threw the stark dilemma facing the monetary authorities into sharp relief: either focus on inflation at the risk of undermining competitiveness, or resist the pressures for appreciation at the risk of compromising disinflation.

83. To summarize: banking sector inefficiencies, limited credibility, price controls, and inflation indexation all played a role in shaping the operating environment for monetary policy in Slovenia. In particular, the lack of competition in the banking system weakened the linkage between the liquidity conditions in the interbank market and the financial conditions faced by borrowers in the market for funds, hampering the effective transmission of interest rate signals to the rest of the economy; and indexation imparted inertia in the disinflation process. At the same time, the vital importance of external competitiveness for growth in

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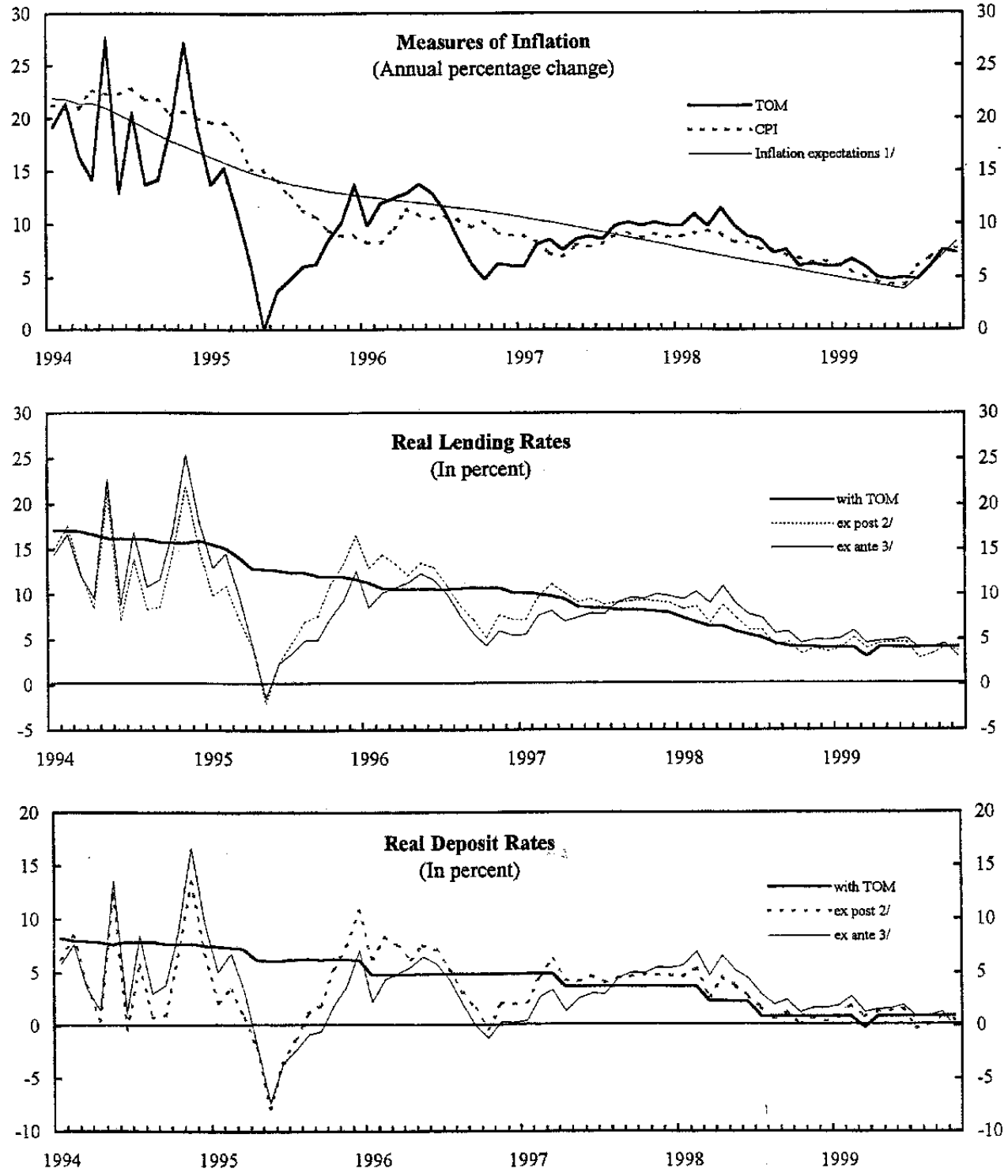
[6] Inversely, in periods of rapidly declining inflation, backward indexation would result in subsidizing savings and penalizing investment, since the premium compensating for inflation included in the interest rate would be higher than necessary.

[7] Industrial goods prices and food sector prices account for 62 percent of the CPI. Some controlled prices are also influenced by the exchange rate, albeit with a lag, in particular oil and oil derivatives prices. These represent about 10 percent of the CPI. See Dronovec (1999).

Figure 13. Real Interest Rates and Measures of Inflation



Source: Bank of Slovenia and Fund staff estimates.

1/ Expected inflation is derived from a regression of inflation on 12 monthly lags, a trend, and a dummy for VAT introduction.

2/ Ex post real rates are computed using actual CPI inflation.

3/ Ex ante real rates are computed using expected inflation, built as explained in footnote 1.

Slovenia has superimposed on the BoS' inflation objective a constraint that, at least in theory, can be contradictory to disinflation. The next section estimates the interaction between policy objectives and instruments in an effort to measure the extent of this trade-off.

C. Target Interaction and Policy Tradeoffs

84. The estimation of a Vector Autoregression (VAR) model allows the representation of monetary policy through a set of linear equations describing the interaction over time of instruments and objectives. This model is then used to derive impulse response functions, describing the adjustment of the system to an innovation in each objective variable. In addition, the structural VAR methodology allows the selection of the best set of assumptions describing the contemporaneous interactions between instruments and objectives. After discussing the set of variables used as instruments and objectives of monetary policy, this section estimates the VAR model and presents the results.

Policy targets and instruments

85. To estimate the extent of feedback between objectives and instruments and assess the efficiency of monetary policy in achieving these objectives, it is necessary to model the operation of monetary policy by identifying *objective* variables, which guide intervention decisions, and *instrument* variables, used to achieve a specific objective. Monetary policy efficiency is taken to depend on the extent of the trade-off accepted in the achievement of one objective while pursuing a conflicting objective. Such trade-off emerges, for instance, when the BoS accepts the inflationary effect of pursuing its exchange rate objective, or when it accepts increased exchange rate volatility when pursuing its disinflation objective.

86. In line with the stated mission of the central bank, two variables are assumed to be the objectives of monetary policy interventions: inflation and the nominal exchange rate. The choice of instrument variables is more difficult, because in practice, the BoS relies on a wide assortment of different instruments (see Chapter I for details). To "lean against" appreciating pressures on the exchange rate arising from capital inflows, as well as to limit its volatility, the BoS has been intervening directly in the foreign exchange market and issuing large amounts of foreign exchange bills (in DM or US$) of varying maturities. Therefore, in a general sense, the BoS interventions in the foreign exchange market is the instrument associated with the exchange rate objective.

87. However, it is not possible to summarize these interventions in a single instrument variable. Data on the outstanding stock of foreign exchange bills issued by the BoS[8] capture

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[8] Since, as discussed before, the interest rate offered on BoS bills does not provide an effective means of transmission of policy decisions to the banking system and from there to the rest of the economy, the outstanding stock of foreign exchange bills would be a more appropriate instrument variable.

only interventions geared towards sterilizing the inflows that have already been realized, before they are monetized.[9] The BoS, however, has often intervened directly in the spot foreign exchange market to *pre-empt* incipient capital inflows and prevent the attendant exchange rate appreciation. The stock of foreign exchange bills does not capture these interventions, and thus gives only a partial picture of the BoS's actions in pursuit of its exchange rate objective.

88. Unfortunately, data on the BoS's interventions in the spot foreign exchange market are not available. However, these interventions were for the most part guided by the size of the differential between domestic and foreign (specifically German) interest rates: a differential rising above 1½-2 percentage points (to allow for a risk premium) would usually trigger a direct purchase intervention of the BoS in the market to thwart potential capital inflows. Therefore, changes in the interest differential can be used as a proxy for the BoS's foreign exchange market interventions. Together with the stock of foreign currency bills, this would provide a near-complete picture of the BoS's actions in pursuit of its exchange rate objective.

89. To achieve disinflation, the BoS has been using as an intermediate target the growth of money supply (base money until 1996, and broad money M3 since 1997) which, in turn, it has been controlling through a variety of interventions, among which tolar bills of different maturities are the most predominant.[10] During the late 1990s, these bills were issued mainly

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[9] Since 1995, different types of foreign exchange bills have been used to sterilize the foreign currency inflows. Their large share in commercial banks' balance sheets (which reached about 13 percent of total assets in 1997 and 1998) highlights the importance of these instruments for exchange rate interventions. Banks have a strong motive to purchase foreign currency bills, since these instruments can be used as a collateral for almost any lending facility of the BoS; can be temporarily sold back to the BoS through repos; and those with maturity of up to 120 days can also be counted against the BoS's foreign exchange reserve requirement. The BoS purchases these bills back when it finds it necessary to stop a depreciation of the tolar. Short-term repos on these bills are used by the BoS to reduce the amount of foreign exchange in the market without affecting reserve money of the central bank. The BoS temporarily purchases these bills from the banks, which are, in turn, obliged to cover themselves by buying foreign exchange from enterprises in a proportion generally larger than the value of the repo (this proportion, determined by the BoS, was 120 percent of the value of the repo during the past two years). When the repo agreement expires, banks often repurchase from the BoS an amount of bills greater than the initial amount of the repo (oversterilization). These operations do not affect tolar interbank interest rates, thus contributing to the weakness of the interest rate transmission mechanism.

[10] Quantity instruments, such as different types of reserve requirements in domestic and foreign currency, are also used to limit monetary growth and control inflation. However, they are omitted from the VAR because they are adjusted very infrequently, whereas the emphasis here is on instruments used frequently in response to changes in the objective variables.

to sterilize the liquidity effect of the BoS's interventions in the foreign exchange market. Again, the interest rate carried by these bills was not the relevant intervention instrument, but rather the outstanding stock of bills issued. However, the above-mentioned sequence of events suggests that, at least during the time period under observation, the stock of tolar bills was very strongly correlated with the stock of foreign exchange bills. Therefore, including tolar bills in the VAR would not add much significance to the model. Since operations in tolar bills affect directly base money, base money is instead chosen as the instrument variable used to pursue the BoS's inflation objective. The table below summarizes the variables used in the VAR model.

Instruments	*Objectives*
Spot foreign exchange market interventions (proxied by the interest rate differential) Stock of foreign exchange bills	Exchange rate
Base money	Inflation

90. Instrument variables in the VAR are base money; the outstanding stock of foreign exchange bills as reported in the balance sheet of the BoS; and the differential between the domestic interest rate on 3 to 9 month tolar deposits and the German 3-month interbank rate (fibor, later re-denominated euribor). The objective variables are the tolar-DM exchange rate (an increase of the exchange rate is a depreciation), calculated as the monthly average of daily market rates; and monthly inflation. Because part of the CPI consists of controlled prices outside the reach of monetary policy, the market-determined component of the CPI is used in the VAR as the objective variable. All variables are expressed in nominal terms, so that the dynamics of prices can be estimated separately. To control for DM inflation, the German CPI is included as an exogenous regressor in the VAR system of equations. Variables are deseasonalized when a strong seasonal pattern appears to be present.[11]

Estimation

91. Monthly data from January 1995 to October 1999 are used for the estimation. The availability of relatively high-frequency data allows us to focus on a relatively limited time period (thus providing results of greater relevance to the present time) without having to worry about sample size problems.[12] Engle and Granger tests reject the hypothesis of cointegration between the variables in levels and interest and exchange rates. Given the non-stationarity of variables in levels, growth rates are used for the stock of foreign exchange

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[11] Only base money and inflation are adjusted to remove high frequency seasonal patterns. The exchange rate, interest rates, and the stock of BoS instruments do not seem to display significant seasonality.

[12] The cost of this approach, evident in the plots of impulse response functions, is, of course, more noise in the results due to the high volatility of monthly data.

bills and base money (three-month centered moving averages are used for the latter to smooth out some of its volatility). These growth rates are monthly, in order to preserve as much information as possible on the monthly pattern of interactions between endogenous variables. The same transformation is made for the nominal exchange rate given its upward trend. Augmented Dickey-Fuller tests reject the presence of a unit root in the transformed variables, as well as in the interest rate differential and free price inflation, at least at the 5 percent significance level. This transformation, therefore, is sufficient to provide stationary time series. Likelihood ratio tests suggest the inclusion of 6 lags for each variable. The results, however, are found to be robust to the lag structure.[13]

92. The model is estimated as a structural VAR (S-VAR) of the type pioneered by Bernanke (1986) and Sims (1986). In this approach, each variable is a function of its own lagged values, as well as those of the other variables, thereby capturing the endogeneity over time of both instruments and objectives of monetary policy. Given V the vector of five endogenous variables considered in the model, X the vector of exogenous variables, A and B matrices of coefficients to be estimated, and ε the vector of innovations, the system of equations can be represented as

$$V_t = A_1 V_{t-1} + A_2 V_{t-2} + \ldots + A_p V_{t-p} + BX_t + \varepsilon_t \qquad \text{with } p=6 \text{ the lags in endogenous variables}$$

93. This system can be used to estimate impulse response functions, which trace the response over time of all endogenous variables to a one-standard-deviation shock to one of them. The model presented above, however, is unidentified: the errors are serially uncorrelated, but share common components across equations, so that a shock cannot be identified as originating from a particular variable. Identification is achieved by imposing and testing restrictions on the contemporaneous correlations of the variables at each time. The identifying restrictions imply a specific decomposition of these errors into orthogonal components, thereby recovering the original innovations driving the dynamics of the system. Instead of using a typical recursive decomposition of errors relying on a particular ordering of the endogenous variables (also known as the Choleski decomposition), an S-VAR model tests directly which restrictions on the contemporaneous interactions best fit the data. If more restrictions are imposed than those strictly necessary to identify the system, these "overidentifying" restrictions are also tested for their significance.

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[13] The tests do not reject the assumption of normal residuals, except for inflation. This might reflect the fact that free price inflation is also affected by other variables outside the scope of the BoS and is therefore not completely endogenous in the model. The lag specification is also found to remove serial correlation in the residuals, and the VAR model can be estimated using OLS.

Contemporaneous interactions

94. The table below summarizes the identifying restrictions and provides the estimated coefficient for the contemporaneous effect of a shock to one variable on each of the others. Empty cells mean that innovations in a variable affect others only with a lag of a month. This specification of the contemporaneous interactions is found to significantly fit the data 86 percent of the time.

Contemporaneous Interactions of Variables					
Shock to / ***Effect on***	Inflation	Interest gap	Exchange rate	Base money	Forex bills
Inflation	1	-	-0.23*	-	-
Interest gap	-	1	-	-	-
Exchange rate	-	-0.01	1	-	-
Base money	-0.02	-	1.86**	1	0.69**
Forex bills	-0.72**	-	-0.16	-	1
Note: (**), (*) denote significance at the 5 and 10 percent level, respectively.					

95. Estimation of the restrictions shows that monetary policy instruments respond within the month to exchange rate and inflation developments, but not inversely. The hypothesis of a contemporaneous effect of a change in the instruments on inflation or the exchange rate is strongly rejected by the data, reflecting some lag in the transmission of policy. Innovations in the exchange rate affect the stock of foreign exchange bills immediately, but it takes a month for the stock of foreign exchange bills to affect the exchange rate. A shock to the exchange rate is also found to affect base money within the month, suggesting that there is some monetization or, on the contrary, "oversterilization" of the BoS's exchange rate interventions. The significant positive estimated parameter of an increase in the stock of foreign exchange bills on base money suggests the first alternative, but it may also reflect an accommodating stance of the BoS immediately after it withdraws foreign currency from the system. A shock to inflation also affects immediately both policy instruments. As expected, a positive shock to inflation leads to a tightening of base money. However, the sign of the impact on the stock of foreign exchange bills is, at first sight, counterintuitive: following a positive shock to inflation, the BoS seems to inject more foreign currency in the system. This may reflect an increase in repo operations by banks, which need to borrow from the central bank by temporarily selling their foreign exchange bills as the initial shock to inflation reduces real liquidity.

96. As expected, some contemporaneous interaction is found between the objective variables. Changes in the exchange rate affect inflation within the month, but the reverse is not true. The sign of the effect is contrary to standard theory, although the coefficient is only

weakly significant: an appreciation tends to increase inflation in the same month. Also, a rise in the interest differential triggers appreciation pressures on the exchange rate within the month. This, however, probably means that the BoS's direct intervention on the foreign exchange market to close the interest differential takes at least a month to take effect. Finally, the interest differential is found not to be affected by base money within the month, reflecting the slow transmission of monetary policy to market interest rates.

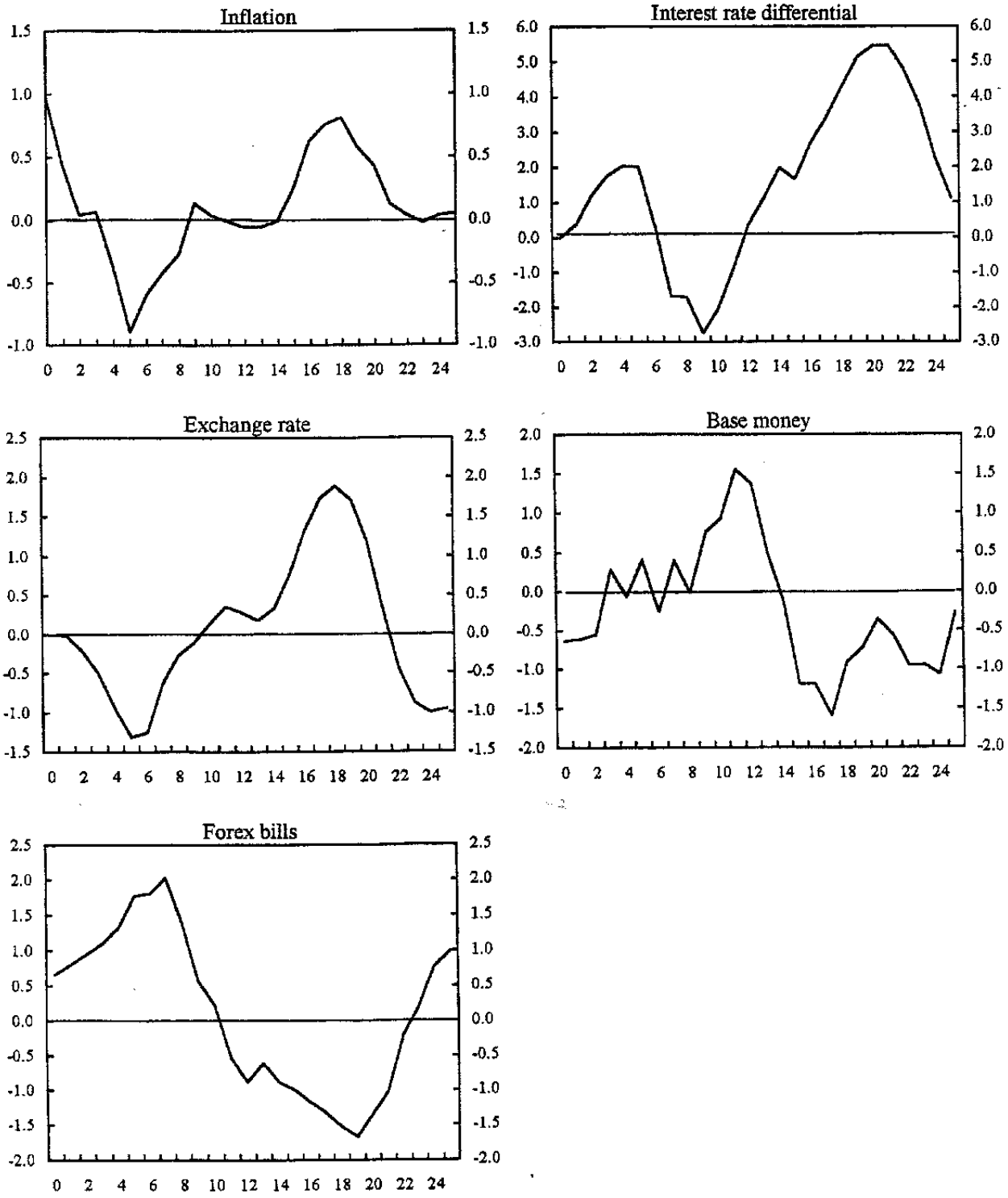
Impulse response functions

97. The impulse response functions illustrate the dynamic impact of the effects reported in the table over time, allowing for the changes in the lagged variables to feed back on the shocked variable. This tool allows the measurement of the effectiveness of monetary policy, in the sense discussed in the introduction.

98. Figure 14 presents the effects of a positive 1 percentage point shock to inflation over a 24-month horizon. This shock generates a policy response on impact, as base money is immediately tightened by 0.6 percent. This is gradually transmitted to the interest rate differential, and triggers an appreciation of the domestic currency. The combination of the monetary tightening and the exchange rate appreciation brings inflation back down below its pre-shock level after 3 months. However, in response to the appreciation, the BoS reacts by issuing foreign exchange bills to withdraw foreign exchange. The appreciation reaches 1.3 percent on the fifth month after the shock to inflation, just after the rise in the interest differential peaks at 200 basis points. The sale of foreign exchange bills intensifies until, on the sixth month, the appreciation of the tolar slows down and the exchange rate reverts gradually towards its pre-shock level. But as the stance of monetary policy is now relaxed, inflationary pressures begin to emerge. The exchange rate begins to overshoot its pre-shock level on the tenth month, triggering inflation. In response, the BoS undertakes a second-round monetary tightening about 12 months after the first one. This leads to a new increase in the interest rate differential which, after a peak depreciation on the 18th month, triggers a new appreciation of the exchange rate. At the end, abstracting from other shocks, a 1 percentage point increase in inflation ends up generating a 1 percentage point appreciation of the tolar after 2 years, while inflation is brought back to its initial level. During this time, the BoS's intervention has introduced a lot of volatility in prices and the exchange rate: inflation has lost and regained 2 percentage points before converging back to its initial level, and the exchange rate has gone through appreciation and depreciation cycles. Over the 24 months following the initial shock to inflation, exchange rate volatility is on average 3.5, which represents 65 percent of the one observed in the data over the sample period. This cyclical pattern underscores the constant state of alert the BoS needs to maintain in the conduct of its operations, as it "chases its tail" trying to counteract the feedback between its inflation and exchange rate objectives.

99. The closely correlated time paths of inflation and the exchange rate suggest a strong passthrough effect (as would be expected in a small and very open economy). But, interestingly, the simulation shows this passthrough is not symmetric: while inflation appears to fall faster than it rises after an initial shock to its level, it takes a lot less for the exchange rate to appreciate than to depreciate. This means that an appreciation helps lower inflation

Figure 14. Slovenia: Effect of a One Percentage Point Shock to Inflation over a 24-month Horizon
(In percent)



quickly, while a depreciation in transmitted into higher inflation more slowly. This finding could be explained by the existence of some downward rigidity in the interest rate.

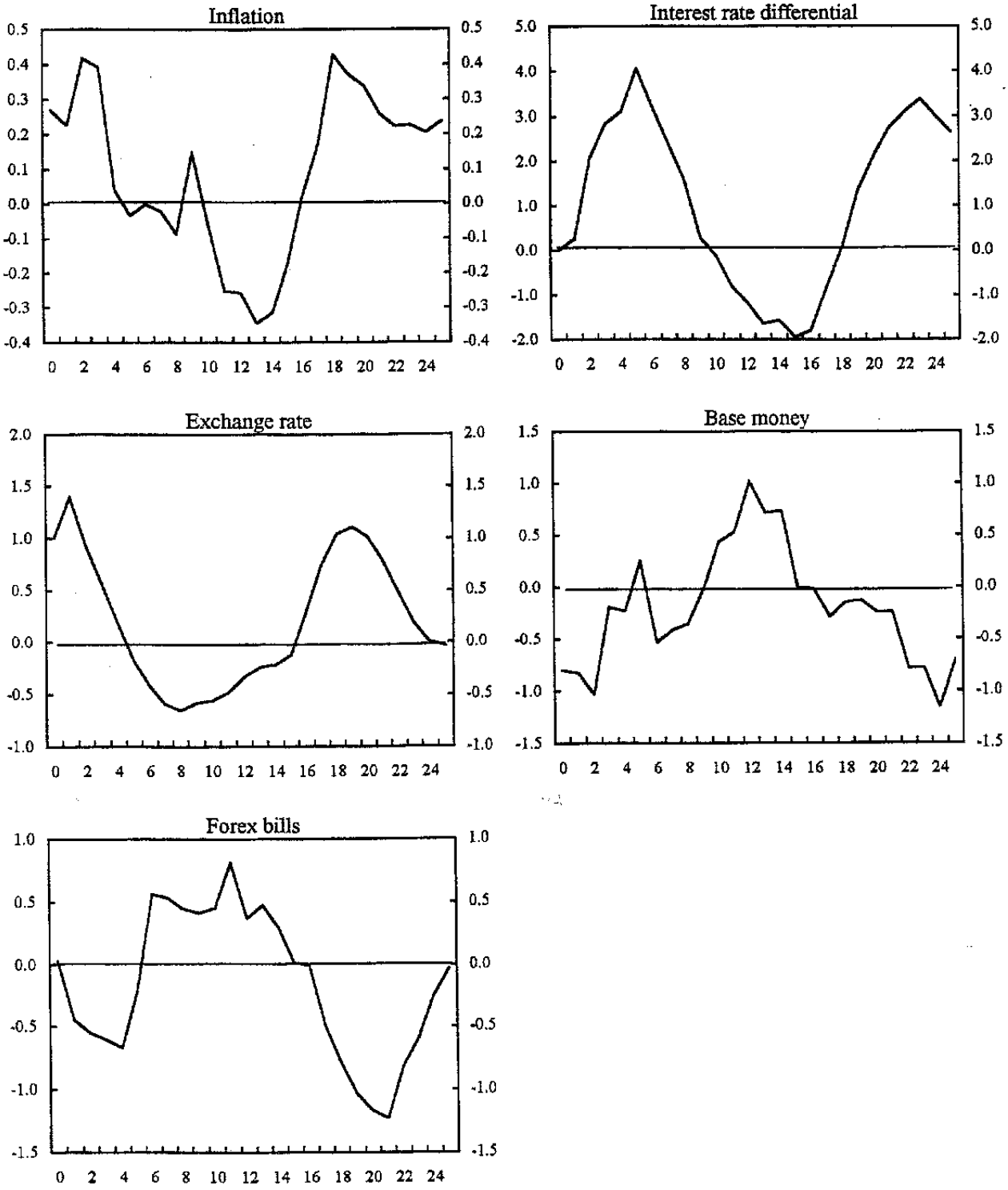
100. In a similar vein, Figure 15 illustrates the effect of a positive 1 percentage point shock to the rate of depreciation of the exchange rate over time. The BoS immediately reacts by injecting foreign currency through the purchase of foreign exchange bills to limit the rate of depreciation of the tolar. It also tightens base money supply to limit inflationary pressures resulting from the faster depreciation. Inflation increases only very slightly as a consequence of this immediate policy response, by about half a percentage point after 2 months. Both monetary tightening and the progressive rise in the interest rate differential, which reaches 400 basis points on the fifth month, amplify the effect of the policy. The depreciation is gradually reversed, and the exchange rate appreciates by half a percentage point 6 months after the shock. This gives an additional impetus to disinflation (once again, an appreciation seems to translate rapidly into reduced inflation). However, the appreciation immediately leads the BoS to reverse the stance of its exchange rate policy and start issuing foreign exchange bills to withdraw foreign currency. This, combined with a reduced interest rate differential, causes the exchange rate to start depreciating on the ninth month after the initial shock. In turn, this causes a second-round monetary tightening. The same pattern of cyclical interactions between objective and instrument variables is evident as after an innovation in inflation. Volatility of the exchange rate estimated over the 24 months following the initial shock reaches about 40 percent of its level observed in the data. The results also imply that an unexpected increase in the rate of depreciation of the exchange rate translates, after many policy rounds, into a 0.2 percentage point increase in inflation.

101. The discussion of the impulse response functions in these two examples illustrates how the BoS did not accept the inevitable trade-off between inflation and exchange rate appreciation but, in trying to achieve both objectives, engaged in interventions that aimed at canceling out the effects of each other. Aside from being inefficient, this strategy was also, to some extent, self-defeating. Although one of the explicit objectives of monetary policy in Slovenia is to limit the volatility of the exchange rate, the results of the model suggest that 40 to 60 percent of the actual volatility of the exchange rate during the period under observation was related to the interaction of various monetary policy interventions. In addition, variance decomposition of the exchange rate confirms that about half of the volatility of the exchange rate in the first twelve months after the initial shock is due to the interaction of monetary policy instruments.

D. Conclusion

102. The circumstances in which monetary policy had to operate in Slovenia after independence imposed serious constraints on the monetary authorities: despite the choice of a floating exchange rate regime, the BoS had to monitor closely and try to use the exchange

Figure 15. Slovenia: Effect of a One Percentage Point Shock to the Exchange Rate over a 24-month Horizon
(In percent)



rate to achieve its objectives. As capital inflows intensified in the mid-1990s, this created tension between the BoS's disinflation objective and its desire to avoid a deterioration in competitiveness. To some extent, capital controls allowed the BoS to pursue both objectives simultaneously. However, the interaction between its intervention instruments resulted in significant volatility in its objective variables and lowered the efficiency of monetary policy.

103. This study attempted to quantify the dilemma facing the BoS during the late 1990s and measure the tradeoffs that the pursuit of conflicting objectives implied. The results suggest that, although on the whole the BoS was very successful in achieving its ultimate objectives, it followed an intervention strategy that was inefficient and, seen from the perspective of each individual objective, to some extent self-defeating. As suggested by the VAR results and confirmed by the variance decomposition of the objective variables, the BoS's intervention policy was responsible for about half of the volatility of the exchange rate during the late 1990s.

104. Against this background, given the recent liberalization of capital flows and plan to open the capital account completely by 2002, the BoS's intention to focus on its disinflation objective in the future is appropriate. Although it is likely to result in somewhat higher exchange rate volatility than in the past, it will make monetary policy interventions more effective.

IV. Market Structure and Efficiency of Intermediation in the Slovene Banking Sector[1]

A. Introduction

105. There is increasing evidence that better developed financial intermediaries lead to higher investment and a better economic growth performance (see Beck, Levine, and Loayza, 1999). Banks not only channel savings into investment, but also serve as the quality controllers that lead to more successful investments. As a result, the quality of investment improves, and output growth accelerates.

106. This Chapter starts by investigating the depth and quality of bank intermediation in Slovenia. Section B compares some financial characteristics of Slovene banks with those in the other central and eastern European (CEE) countries and the EU. Section C discusses the factors that may have an impact on bank intermediation and could explain the differences between countries, including savings levels, the intensity of ongoing structural reform, information asymmetries, institutional factors, and the degree of competition. Section D focuses on one of the potentially important factors, the degree of competition, and investigates empirically the level of competition in the Slovene banking system. Section E summarizes the results.

B. Stylized Facts

107. This section reviews the broad characteristics of Slovene banks, and highlights the main differences between them and other banks in western and eastern Europe. In broad terms, the picture that emerges is that the Slovene banking sector tends to be profitable and stable, with a better lending portfolio than that found in the other CEE countries. It is also more efficient than that in the other CEE countries. However, compared with those in the EU, Slovene banks are significantly less efficient. Also, the level of bank intermediation, while good compared with the other CEE countries, falls well short of that observed in the EU.

108. Compared with other countries in Europe, Slovene banks were more ***profitable*** in recent years. During 1996-98, the return to asset ratio in Slovenia was double that in the medium- and small-size countries in the EU, and close to triple that in the largest four countries (Table 2).[2] Comparing the return to capital ratios also leads to similar conclusions,

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[1] Prepared by N. Tarhan Feyzioğlu.

[2] The figures in Table 2 differ slightly from those in the Bank of Slovenia's report. This is because these figures are based on banks that publicly disclose their balance sheet and income statements, while the BoS report covers all banks in Slovenia.

Table 2. Slovenia: Financial Ratios, 1995-1998

	Slovenia 1/	CEE 1/ 2/	EU Other 1/ 3/	EU Large 1/ 4/
		(In percent)		
Net Income/Total Capital Funds				
1995	5.7	23.3	9.7	8.2
1996	12.1	17.8	10.6	8.2
1997	15.6	15.8	10.4	8.4
1998	16.8	-1.0	11.0	10.9
Net Income/Total Assets				
1995	0.6	1.9	0.6	0.4
1996	1.3	1.4	0.7	0.5
1997	1.6	1.3	0.7	0.5
1998	1.6	-0.1	0.8	0.6
Liquid Assets/Total Assets				
1995	41.4	42.5	35.8	34.0
1996	40.3	41.6	35.2	34.5
1997	35.8	42.4	33.5	34.5
1998	33.1	42.0	30.4	33.0
Total Loans/Earning Assets				
1995	45.4	52.2	54.8	54.3
1996	47.4	53.6	53.5	53.6
1997	46.3	51.2	53.5	533.2
1998	51.6	52.9	53.3	53.6
Non-Performing Loans/Total Loans				
1995	4.1	5.8	1.3	2.0
1996	3.8	5.7	1.0	2.1
1997	2.8	6.5	0.8	1.8
1998	2.2	5.6	0.7	2.0
Total Capital Funds/Total Assets				
1995	10.9	8.3	6.4	5.4
1996	11.0	7.8	6.8	5.7
1997	10.1	8.0	6.8	5.6
1998	9.6	7.2	7.0	5.6
Non-Interest Expense/Income				
1995	51.5	37.8	30.8	30.1
1996	48.8	45.9	32.0	31.3
1997	44.2	46.2	34.6	30.8
1998	43.6	56.0	35.8	29.7
Non-Interest Expense/Total Assets				
1995	6.3	5.8	2.6	2.2
1996	6.1	7.6	2.5	2.1
1997	5.2	7.3	2.4	2.0
1998	4.9	8.9	2.5	1.9
Non-Interest Expense/Total Deposits				
1995	9.3	7.7	3.6	3.5
1996	9.0	9.9	3.6	3.4
1997	7.4	9.3	3.5	3.3
1998	6.6	11.2	3.7	3.2

Source: BankScope.

1/ Based on banks that publicly disclose their balance sheets and income statements. For a complete list, see BankScope.

2/ CEE: Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, and Slovak Republic.

3/ EU Other: Austria, Belgium, Denmark, Finland, Greece, Ireland, Netherlands, Portugal, Spain, and Sweden.

4/ EU large: Germany, France, Italy, and the United Kingdom.

although the differences are somewhat smaller.[3] The banks in the other CEE countries were more profitable than the Slovene banks in 1995-96, but this was reversed in 1998, as the profitability of the Slovene banks improved, while that of banks in the other CEE countries deteriorated.

109. The ***quality of lending*** in Slovenia was broadly at the same level as in the large EU countries, and above that in the other CEE countries. The share of non-performing to total loans in Slovenia was 2.2 percent, which is less than half that in the CEE countries.[4] At the same time, this ratio in the medium- and small-size EU countries was half that in Slovenia. Over time, the quality of lending in Slovenia has been improving: the non-performing loans ratio was more than 4 percent in 1995, but has since declined steadily and reached the level of the large EU countries in 1998.

110. ***Liquidity*** of the banking system was on par with that of the banks in the EU. In 1995, the ratio of liquid assets to total assets was closer to the levels in the other CEE countries, at more than 40 percent. Since then, however, this ratio declined to just above 30 percent by 1998, comparable to that observed in the EU countries.

111. However, the ***efficiency*** of the banking system in Slovenia lags that in the EU. The ratio of operating expenses to income in Slovenia was still 50 percent more than that observed in the large EU countries. This was true even compared with the smaller EU countries, which tend to have less efficient banks. When the ratios of operating expenses to assets and to total deposits are considered, a similar picture emerges. At the same time, when comparing the non-interest expenses of the Slovene banks as a group with the banks in the other CEE countries, Slovene banks show much better results. For example, in 1998, the ratio of non-interest expenses to income was 56 percent in the other CEE countries, but 44 percent in Slovenia. It should also be noted that the level of efficiency varied a lot among individual banks in Slovenia. For example, Nova Ljubljianska Banka's ratio of non-interest expenses to total revenues was 32 percent in1998, which was better than the average in the smaller EU countries, although still above the average in the large EU countries. On the other hand, Banka Koper's ratio was close to 70 percent, which was worse than the average of the other CEE countries.

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[3] The ratio of net income to total capital funds is used, instead of the net income to shareholders' equity, because of data inconsistency. The sections of data that seem correct are consistent with the results obtained from using total capital funds.

[4] This ratio, obtained from BankScope, is approximately half of the figure in the Banking Supervision Department's Report on 1998 and the first half of 1999. This is because the BankScope covers only the larger banks. Since the same is true for the other countries, for comparability, the BankScope figures are used in this discussion.

112. The ***depth of intermediation*** is also lower in Slovenia than in the large EU countries. Total loans in each of the four large EU countries exceeded 75 percent of their GDP, and for Germany this figure was around 150 percent of GDP in 1998 (Figure 16).[5] In contrast, in Slovenia this ratio was around 45 percent. Bank-specific data give a similar pattern. Loans were close to 5 times the total capital funds in the Slovene banking system as a whole in 1998, but they are 7 to 8 times in the EU countries. The ratios of loans to total assets, on the other hand, are similar in Slovenia and the EU, but this does not mean that bank intermediation is similar. Rather it shows that, in more advanced economies, more funds are drawn into the banking system for the same amount of capital.

C. Factors That Affect the Level and Efficiency of Intermediation

113. This section discusses the possible factors that may inhibit deeper bank intermediation and more efficient banking in Slovenia, the two aspects that were found to be significantly different than in the EU. Demand, supply, and institutional factors are considered. Some of these factors can be ruled out, while others merit more careful testing. One among the latter is market structure, which is extensively discussed and tested in the following section.

114. One possible factor for low bank intermediation, which has been identified in the literature,[6] is low overall saving and investment. However, in most cases, the underlying cause of low credit to the real sector is an unstable macroeconomic situation. This is not the case in Slovenia: since the outset of transition, the Slovene economy has been on a steady growth path, without wide swings in the growth rate. Not surprisingly, saving and investment in Slovenia have traditionally been high by international standards, at around 24 percent of GDP.

115. This means that savings are channeled to investment through retained earnings and other means, rather than banks. The development of the capital market as an alternative intermediary to banks may be the reason. This trend is indeed evident in some advanced industrial countries, where the capital markets are expanding, like the U.S. Again, however, this does not seem to fit the facts in Slovenia: at 25 percent of GDP in 1999, stock market capitalization-to-GDP was low, albeit on an increasing trend.[7]

116. Another possibility is that, although the demand for credit may be high, the associated risk may also be high. This is typical in economies that are still maturing, where markets are

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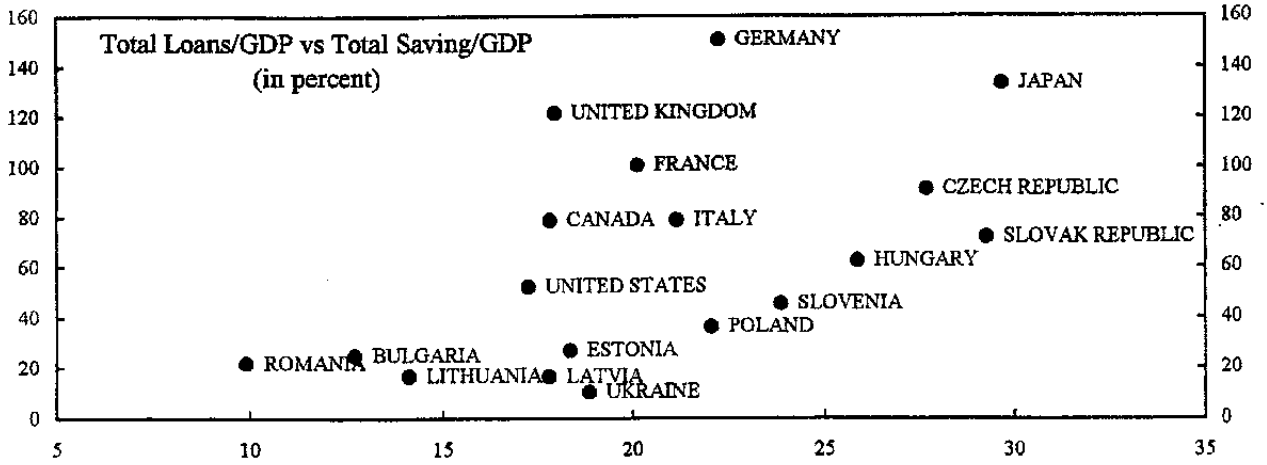
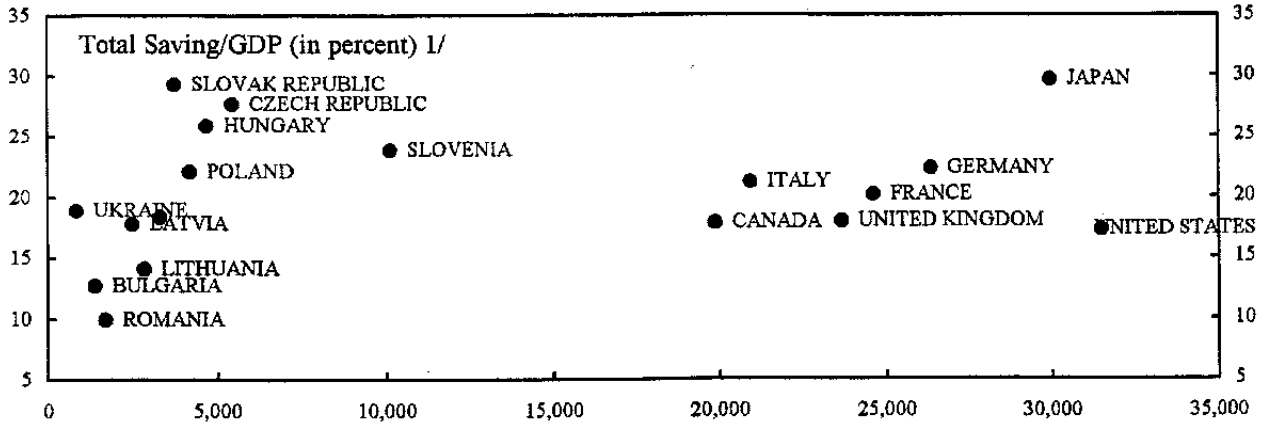
[5] The results are similar if loans to private sector are used.

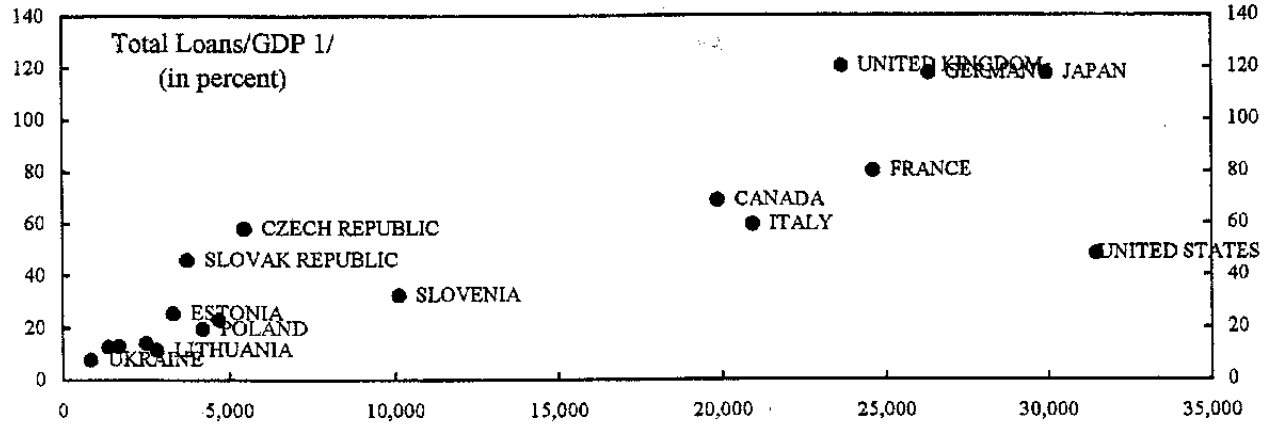
[6] See Pazarbasioglu (1997), and Ghosh and Ghosh (1999) on the Finnish banking crisis and the Asian crisis, respectively.

[7] See Ministry of Finance (1999), and EBRD (1998).

Figure 16. Slovenia: Total Loans and Savings, 1998







Source: International Financial Statistics.

1/ Against per capita GDP in US dollars.

incomplete and institutions are changing. All these factors increase project and country risk. Risk may also be high because of a lack of adequate information on the potential borrowers. This, in turn, may be a reflection of deep restructuring in the real sector, when many of the old bank customers disappear and new ones emerge that do not have long credit histories, are not able to present sound business plans, or do not have good collateral. Finally, risk may be high if auditing and accounting standards are inadequate, or the legal framework does not allow for quick recovery of collateral. As Slovenia is still an emerging transition economy, these factors are probably to some extent relevant in explaining the relatively low degree of intermediation. A full assessment of the credit risk facing Slovene banks is outside the scope of this study. However, it should be noted that Slovenia has the highest investment rating among transition economies, which suggests that, at a minimum, additional factors are also at work.

117. Finally, intermediation may be relatively low and inefficient as a result of a non-competitive market structure. If banks behave like local monopolies, then incentives to improve efficiency would normally be weak, and the interest rate differential would be large, discouraging higher deposit and lending volumes. This would also be true for oligopolistic structures.

118. The concentration in the Slovene banking sector indeed suggests the possibility of non-competitive forces at play. Four banking groups, led by large banks, dominate the market. The market share of the three largest banks, of which two are mostly state-owned, is more than 50 percent, and the total assets of the largest bank are more than twice as big as the second largest bank. In recent years, the number of banks has also been declining, suggesting that entry to the sector is inhibited: just in 1998, four banks were merged or liquidated, decreasing the number of commercial banks to 24.[8] It should be stressed, however, that lack of entry by itself does not mean that markets are non-competitive: as long as markets are contestable and banks behave accordingly, competition exists. More careful analysis is needed to derive firm conclusions about the market structure in the Slovene banking system.

D. Market Structure of the Banking Sector

119. This section empirically investigates the structure of Slovenia's banking sector. First, the theory is reviewed to yield testable hypotheses on whether banks behave monopolistically, oligopolistically, or competitively; and then these hypotheses are tested against the data.

120. The empirical methodology for assessing the market structure, as developed by Panzar & Rosse (1987), is based on microeconomic theory (see Coccorese (1998) for an application to the Italian banking system). The key point is that a monopoly's output and

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[8] In addition, there are 2 banks set up by the Constitution, 6 savings banks, and 70 savings and loan institutions.

total revenue decline when its marginal cost curve shifts upward. On the contrary, in a perfectly competitive sector, an increase in marginal costs would be fully reflected in prices, thus increasing total revenues one-to-one for the sector as a whole. In between these two extremes is the case of oligopolistic structure: as the marginal cost curve shifts upward, total revenues increase by less than one-to-one with the increase in costs.

121. More specifically, total revenues may generally be described as

$$y_{it} = q(x_{it}, z_{it}), \quad i = 1, 2, \ldots N, \quad t = 1, 2, \ldots T$$

where, y is total revenues, x is a vector of input factor prices, and z is all other factors that affect revenues—notably cost and demand side variables. Panzar & Rosse show that if the sum of the coefficients associated with input prices is less than zero, then the firms under investigation are behaving like monopolies; if the sum of the input coefficients is between zero and one, then the firms behave like oligopolies; and if the sum of the input coefficients is one, then the firms operate in a fully competitive environment. A sum greater than one is not compatible with this methodology, and indicates a misspecification. As the variables are all in logarithms, the coefficients can be interpreted as elasticities.

122. In the case of the Slovene banking sector, the production function of banking services is specifically modeled as follows:

$$tr_{it} = q(i_{it}, w_{it}, o_{it}, z_{it}; b), \qquad i = 1, 2, \ldots N, \quad t = 1, 2, \ldots T$$

where, tr_{it} is the total revenue, i_{it} is the unit price of funds, w_{it} is the unit labor cost, o_{it} is the unit price of other costs, z is all other variables that effect total revenue,[9] and b is the vector of estimated coefficients. Specifically, the unit price of funds is calculated as the ratio of total interest expenses to total deposits; the unit labor cost is calculated as the ratio of total expenditure on labor to number of employees; and the unit price of other costs is the ratio of other operating costs to the total number of branches. Other variables included in the specification are total deposits (*td*), used as a proxy for demand; total administered funds (*taf*); the ratio of branches to total number of branches (*btb*), to capture the fact that the larger the bank is, the larger, on average, total revenues should be; and the risk capital to administered funds ratio (*rcaf*), and the loans to administered funds ratio (*laf*), to proxy for risk. All variables are in natural logarithms.

123. The tests are as follows: let $H = b_i + b_w + b_o$, where the three coefficients correspond to unit cost of funds variable, unit labor cost variable, and unit price of other costs variable, respectively. If the hypothesis that H is less than or equal to zero is rejected, this implies that the market structure is not monopolistic. In addition, if the hypothesis that H is between zero and one is rejected, then the market structure is not oligopolistic either. If the hypothesis that

[9] This specification closely follows that in Coccorese (1998).

H is equal to 1 is rejected, then the results would be inconsistent with the theory, implying that there is misspecification in the model or the estimated equation.

124. When the above test is applied to a sample that spans 1994-98, the results show that Slovenian banks behave oligopolistically (Table 3).[10] The sum of the input factor price coefficients of the panel data estimation is significantly larger than zero, thus rejecting the hypothesis that the banks behave oligopolistically. At the same time, the sum of the coefficients is smaller than one, rejecting the hypothesis of perfect competition in the banking system. The coefficient of factor prices of funds and of other costs are significantly greater than zero, while unit labor costs are not correlated with total revenues. The results from fixed and random effects do not differ substantially.

125. Other coefficient estimates also support the claim that Slovene banks behave oligopolistically. Variables that are used to capture scale economies—total administered funds (*taf*) and the number of branches in total branches (*btb*)—have the expected positive sign. They are mostly significant, implying that, as the size of a bank increases, other things being equal, total revenues increase. The only exception is the estimated coefficient of the number of branches, which is very close to zero. This is probably because the variation in this variable is very small, and therefore most of its significance is absorbed by the fixed effects constant terms. The existence of scale economies is consistent with an oligopolistic environment. The two coefficients on risk measures—the ratio of risk capital to total administered funds (*rcaf*), and the ratio of loans to total administered funds (*laf*)—also have the expected positive signs and are significant, indicating that those banks that intermediate more and are well capitalized have higher revenues. Finally, the coefficient estimates of total deposits (*td*) are mostly positive, indicating that they are acceptable proxies for demand changes.

126. These results remain broadly valid even if the largest two state-owned banks are excluded from the sample. Since the banking system in Slovenia is dominated by two state-owned banks, their behavior may skew the regression results for the whole sector. To uncover the market behavior of the other banks, a separate set of regressions was run on all the banks except the two largest. The regression coefficients and their interpretations turned out to be quite similar to those that used all the sample.

127. Lastly, the results indicate that competition is increasing in the banking sector over time. When a time dummy is allowed to interact with the input factor coefficients, the coefficients of the interaction terms turn out positive. This means that the impact of input prices is increasing through time, implying that competitive forces are increasing. At the

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[10] If the regressions are run for each year separately, the results also reject the hypothesis that Slovenian banks behave competitively. However, the annual regressions cannot significantly differentiate between monopolistic and oligopolistic behavior in any year except 1994.

Table 3. Slovenia, Market Structure Regression Results, 1994-98

	Full sample	Top two excluded	With time trend
Variables 1/	Coefficient estimates 2/		
i	0.44	0.40	0.32
	(10.40)	(8.79)	(5.70)
w	0.05	-0.01	0.20
	(0.59)	-(0.14)	(2.24)
o	0.20	0.19	0.20
	(3.21)	(2.71)	(3.07)
td	0.18	0.20	0.20
	(1.82)	(1.91)	(2.01)
taf	0.53	0.55	0.54
	(3.81)	(3.66)	(3.91)
btb	-0.03	-0.02	-0.02
	-(1.38)	-(0.95)	-(0.79)
rcaf	0.13	0.11	0.13
	(4.17)	(3.25)	(4.39)
laf	0.22	0.18	0.27
	(3.37)	(2.54)	(4.19)
*i*t*	-	-	0.05
			(2.86)
*w*t*	-	-	-0.01
			-(0.55)
*o*t*	-	-	0.02
			(2.09)
R2	0.99	0.99	1.00
	Market structure tests 2/		
Monopolistic (Ho: H<= 0)	Reject	Reject	Reject
Oligopolistic (Ho: 0 < H < 1)	Not Reject	Not Reject	Not Reject
Perfect competition (Ho: H >= 1)	Reject	Reject	Reject
Misspecified (Ho: H > 1)	Reject	Reject	Reject

Source: staff calculations.

1/ *i* is the unit price of funds, *w* is the unit labor cost, *o* is the unit price of other costs, *td* is total deposits, *taf* is total administered funds, *btb* is the ratio of branches to total number of branches, *rcaf* is the risk capital to administered fund ratio, and *laf* is the loans to administered funds ratio. All variables are in natural logarithms.

21/ Results pertain to fixed effects panel data estimation, with a sample from 1994 to 1998. Random effects results are similar, therefore not reported; however, they can be requested from the author. T-statistics are in paranthesis. T-statistics are in paranthesis.

3/ H = b_i + b_w + b_o, where b_x is the coefficient estimate of variable x. The tests use 5 percent significance levels.

limit, all other things being equal, the sum of these coefficients would tend to one over time. However, this is a rough calculation and should be taken only as an indicative result: if this linear time dummy is projected far enough in the future, the sum of the coefficients would become significantly larger than one, which would be inconsistent with microeconomic theory.

E. Summary and conclusions

128. This Chapter showed that Slovene banks are profitable and more efficient than the banks in the other CEE countries, but not as efficient as the banks in the EU. Similarly, they intermediate savings and investment more than the banks in the other CEE countries, but not as much as those in the EU.

129. There may be several reasons why the depth and efficiency of bank intermediation in Slovenia lags that in the EU. One possible explanation is that credit risk may be high for a number of different reasons. This possibility merits a more thorough investigation. Instead, this study focused on another possible explanation: that the banking sector is not fully competitive. This is suggested by the stylized facts, and indeed confirmed by the empirical investigation, which indicates that the Slovene banks behave oligopolistically. Their expenditures are not sufficiently sensitive to their revenues to signal that they feel the pressure of perfect competition. This is true not only for the largest banks that dominate the market, but also the others. Nevertheless, the results also show that some degree of competition is present and, perhaps more importantly, that competition has been increasing in the banking sector during the last few years.

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Table A1. Slovenia: Aggregate Demand and Supply

	1993	1994	1995	1996	1997	1998	1999 Est. 1/
	(Percent change)						
Demand and supply							
Total aggregate demand	7.3	7.9	6.6	3.1	7.3	6.3	5.1
Exports of goods and nonfactor services	0.6	12.3	1.1	3.3	11.3	7.0	3.6
Total domestic demand	11.4	5.5	9.9	3	5.1	5.8	6.0
Private consumption	13.9	4	9.1	2.4	3.3	2.3	3.7
Public consumption	5.3	2	2.3	3.6	4.3	5.6	5.1
Gross fixed investment	10.7	14.1	16.8	9.2	11.3	12.9	14.0
Imports of goods and services	17.6	13.1	11.3	2.4	12.2	10.1	7.2
GDP	2.8	5.3	4.1	3.5	4.6	3.9	3.8
Agriculture, forestry and fishing	-4.2	4.2	1.6	1.1	-2.9	2.2	1.9
Industry	-3.1	6.0	2.9	1.5	6.2	4.7	1.7
Services	4.8	4.3	4.0	1.5	6.2	4.7	1.7
	(In percent of GDP)						
Gross domestic investment	19.3	20.9	23.4	23.5	24.2	25.2	26.6
Gross national savings	20.9	25.1	23.2	23.7	24.4	25.2	24.3

Source: Institute of Macroeconomic Analysis and Development (IMAD).

1/ IMAD estimates as of December 1999.

Table A2. Slovenia: Inflation

	CPI			Controlled Prices	Unit Values		PPI
	Total	Goods	Services		Exports	Imports	
				(In percent, end-of-period)			
1993	22.9	20.0	36.4	34.9	-4.5	-10.0	17.0
1994	19.5	19.4	20.1	15.4	7.9	1.8	18.9
1995	9.0	7.1	15.9	10.0	20.6	16.6	8.2
1996	9.0	8.0	12.2	8.4	0.8	-1.1	6.1
1997	8.8	8.5	9.8	16.9	-9.8	-9.6	7.1
1998	6.5	5.6	9.3	11.1	-0.2	-2.7	3.8
1999	8.0	7.8	8.8	9.1	-8.7	-8.6	3.5
				(In percent, monthly rate)			
Mar-93	56.1	57.0	66.2	24.9	-0.3	-4.4	44.1
Jun-93	30.7	29.4	48.6	23.8	-4.3	-8.6	16.9
Sep-93	24.6	22.3	38.0	29.9	-9.0	-14.8	13.6
Dec-93	23.1	20.0	37.9	34.9	-4.3	-12.1	17.0
Mar-94	21.1	18.7	30.9	22.3	2.5	-5.6	15.4
Jun-94	22.4	21.3	27.1	19.7	6.2	-1.2	17.9
Sep-94	22.1	20.5	25.0	15.7	11.6	7.7	18.6
Dec-94	20.4	19.6	20.2	15.4	16.9	14.6	18.9
Mar-95	19.1	19.0	20.4	15.6	26.6	23.0	17.0
Jun-95	14.8	14.1	18.1	12.2	24.3	20.4	14.9
Sep-95	11.6	10.0	18.1	13.5	14.8	10.6	11.6
Dec-95	9.1	7.1	16.9	10.0	15.8	11.3	8.2
Mar-96	8.7	6.6	16.8	12.9	3.1	0.0	7.1
Jun-96	10.9	9.3	16.7	16.4	-1.9	-4.2	6.8
Sep-96	10.3	9.0	15.1	10.3	0.6	-1.5	7.1
Dec-96	9.5	8.5	12.7	8.4	-3.3	-3.3	6.1
Mar-97	8.2	7.4	10.4	7.7	-10.3	-9.8	5.4
Jun-97	7.6	6.8	10.1	15.2	-9.3	-9.3	5.8
Sep-97	8.8	8.4	9.9	18.6	-11.6	-11.3	6.2
Dec-97	8.9	8.5	10.2	16.9	-8.3	-8.3	7.1
Mar-98	9.1	8.6	11.4	18.3	-2.7	-5.6	7.6
Jun-98	8.6	8.0	10.7	12.8	0.1	-2.3	6.6
Sep-98	7.4	6.6	10.1	9.3	3.5	1.2	6.1
Dec-98	6.6	5.8	9.4	11.1	1.7	-2.1	3.8
Mar-99	5.1	4.6	6.7	8.8	-5.5	-6.8	1.8
Jun-99	4.3	3.7	6.1	6.2	-11.4	-10.8	1.5
Sep-99	7.5	7.2	8.5	9.0	-12.3	-10.2	1.9
Dec-99	8.0	7.8	8.8	9.1	...	...	3.5
Jan-00	7.8	...	...	...	...	...	4.1

Sources: Bank of Slovenia; and Institute of Macroeconomic Analysis and Development.

Table A3. Slovenia: Labor Market Indicators

	1993	1994	1995	1996	1997	1998	1999 1/
Unemployment rate							
Registered	14.4	14.4	13.9	13.9	14.4	14.5	13.0 2/
Labor force survey (ILO)	9.1	9.0	7.4	7.3	7.1	7.9	7.4
Employment rate 3/	85.4	85.5	86.0	86.1	85.6	85.5	87.0 2/
Monthly average net wages							
Overall economy	52.0	28.3	18.6	14.8	11.4	9.5	8.8 4/
Manufacturing	48.6	30.7	17.5	14.2	11.7	10.6	...
Public Administration	55.7	18.7	18.2	15.9	10.9	7.5	...
Unit labor costs 2/							
Nominal	...	...	9.8	6.9	7.2	5.9	...
Real 3/	...	...	-3.1	0.1	1.1	-0.1	...

Source: Institute of Macroeconomic Analysis and Development.

1/ Latest actual.
2/ November 1999.
3/ Labor Force Survey.
4/ October 1999.
5/ In manufacturing.
6/ Deflated by the producer price index.

Table A4. Slovenia: Summary of General Government Operations

	1993	1994	1995	1996	1997	1998	1999		2000
							Budget	Actual 1/	Budget
				(billions of SIT)					
TOTAL REVENUE	641	804	958	1,092	1,223	1,398	1,574	1,589	1,729
Tax revenue	603	773	916	1,032	1,156	1,303	1,480	1,499	1,625
Taxes on Income and Profits	105	141	160	197	228	253	283	274	308
Social Security Contributions	275	317	363	376	401	448	491	497	537
of which Pension fund	193	238	283	278	289	324	356		400
Health fund	86	96	114	138	154	172	188		206
Domestic taxes on goods and services	167	240	298	349	412	480	581	599	635
Taxes on international trade	51	64	78	77	58	47	44	46	40
Payroll, property and other taxes	4	10	17	33	57	74	81	82	104
Nontax revenue	37	29	39	57	61	88	90	80	83
Capital revenue	1	2	2	2	4	4	4	6	11
Other revenue	0	0	1	1	2	2	0	4	10
TOTAL EXPENDITURE	628	803	957	1,084	1,257	1,423	1,600	1,612	1,769
Current expenditure	289	353	421	487	564	642	722	699	783
Salaries and wages	131	154	194	234	285	313	344	340	375
Central and local governments	58	61	67	82	97	104	119	117	126
Other public institutions	73	93	127	152	188	208	225	224	249
Expenditures on goods and services	137	171	201	220	243	277	311	297	334
Central and local governments	50	62	76	78	90	106	124	129	147
Other public institutions	88	109	125	142	153	171	188	168	187
Interest Payments	18	27	26	31	35	42	56	51	62
Reserves	2	1	1	2	2	11	10	11	12
Current transfers	290	370	443	489	571	641	712	743	791
of which: Subsidies	38	36	42	35	40	49	57	63	68
Transfers to households	247	327	392	444	519	574	638	646	698
Capital expenditure	40	50	57	64	68	82	96	111	125
Capital transfers	10	30	36	44	54	58	71	59	71
GENERAL BALANCE	13	0	1	8	-34	-26	-26	-23	-40
Lending minus repayments	-4	-4	2	-3	0	4	-3	0	0
Net Lending	4	4	6	13	16	10	3	10	3
Revenues from privatization 2/	0	0	9	10	16	14	0	9	4
OVERALL BALANCE	8	-4	3	5	-34	-22	-29	-23	-40
FINANCING (NET)	-8	4	-3	-5	34	22	29	23	40
Total borrowing	6	-2	-5	11	32	36	37	50	39
Foreign	8	6	6	23	20	11	...	61	...
Domestic	-3	-8	-12	-12	12	24	...	-11	...
Changes in cash deposits (increase = +)	14	-6	-2	17	-2	14	8	26	-2
Memorandum item									
Surplus/Deficit (priv. receipts as financing)	8	-4	-5	-5	-50	-35	-29	-33	-44

Source: Ministry of Finance of the Republic of Slovenia.

1/ As of January 2000.

Table A5. Slovenia: Summary of General Government Operations

	1993	1994	1995	1996	1997	1998	1999		2000
							Budget	Actual 1/	Budget
					(percent of GDP)				
TOTAL REVENUE	44.7	43.4	43.1	42.7	42.1	43.1	43.8	44.5	43.7
Tax revenue	42.0	41.7	41.2	40.4	39.8	40.2	41.2	41.9	41.1
Taxes on Income and Profits	7.3	7.6	7.2	7.7	7.8	7.8	7.9	7.7	7.8
Social Security Contributions	19.2	17.1	16.3	14.7	13.8	13.8	13.7	13.9	13.6
Domestic taxes on goods and services	11.7	13.0	13.4	13.7	14.2	14.8	16.2	16.8	16.1
Taxes on international trade	3.6	3.5	3.5	3.0	2.0	1.5	1.2	1.3	1.0
	0.3	0.6	0.7	1.3	2.0	2.3	2.3	2.3	2.6
Nontax revenue	2.6	1.6	1.8	2.2	2.1	2.7	2.5	2.2	2.1
TOTAL EXPENDITURE	43.8	43.4	43.1	42.4	43.2	43.9	44.6	45.1	44.7
Current expenditure	20.1	19.0	19.0	19.1	19.4	19.8	20.1	19.6	19.8
Salaries and wages	9.1	8.3	8.7	9.2	9.8	9.6	9.6	9.5	9.5
Expenditures on goods and services	9.6	9.2	9.0	8.6	8.4	8.5	8.7	8.3	8.4
Interest Payments	1.3	1.5	1.2	1.2	1.2	1.3	1.6	1.4	1.6
Reserves	0.1	0.1	0.1	0.1	0.1	0.3	0.3	0.3	0.3
Current transfers	20.2	20.0	19.9	19.1	19.6	19.8	19.8	20.8	20.0
of which: Subsidies	2.6	2.0	1.9	1.4	1.4	1.5	1.6	1.8	1.7
Transfers to households	17.2	17.7	17.6	17.4	17.9	17.7	17.8	18.1	17.7
Capital expenditure	2.8	2.7	2.6	2.5	2.3	2.5	2.7	3.1	3.2
Capital transfers	0.7	1.6	1.6	1.7	1.8	1.8	2.0	1.7	1.8
GENERAL BALANCE	0.9	0.0	0.0	0.3	-1.2	-0.8	-0.7	-0.6	-1.0
Lending minus repayments	-0.3	-0.2	0.1	-0.1	0.0	0.1	-0.1	0.0	0.0
Net Lending	0.3	0.2	0.3	0.5	0.6	0.3	0.1	0.3	0.1
Revenues from privatization	0.0	0.0	0.4	0.4	0.5	0.4	0.0	0.3	0.1
OVERALL BALANCE	0.6	-0.2	0.1	0.2	-1.2	-0.7	-0.8	-0.7	-1.0
FINANCING (NET)	-0.6	0.2	-0.1	-0.2	1.2	0.7	0.8	0.7	1.0
Total borrowing	0.4	-0.1	-0.2	0.4	1.1	1.1	1.0	1.4	1.0
Foreign	0.6	0.3	0.3	0.9	0.7	0.3	0.0	1.7	0.0
Domestic	-0.2	-0.4	-0.5	-0.5	0.4	0.8	0.0	-0.3	0.0
Changes in cash deposits (increase = +)	1.0	-0.3	-0.1	0.6	-0.1	0.4	0.2	0.7	0.0
Memorandum items									
Surplus/Deficit (priv. receipts as financing)	0.6	-0.2	-0.2	-0.2	-1.7	-1.1	-0.8	-0.9	-1.1
Nominal GDP	1,435	1,853	2,221	2,555	2,907	3,243	3,592	3,574	3,955

Source: Ministry of Finance of the Republic of Slovenia.

1/ As of January 2000.

Table A6. Slovenia: Balance Sheet of the Bank of Slovenia

	1993	1994	1995	1996	1997	1998				1999			
						March	June	Sep.	Dec.	March	June	Sep.	Nov.
						(In billions of tolars)							
Assets	**140.1**	**240.2**	**312.4**	**364.1**	**597.7**	**603.7**	**663.0**	**640.2**	**618.7**	**730.1**	**674.0**	**651.1**	**669.6**
Foreign Assets	104.0	190.1	250.9	329.8	559.3	561.5	624.4	601.6	594.1	690.5	631.0	596.1	625.9
Of which:													
Convertible foreign exchange	103.9	177.0	229.4	325.0	552.3	553.4	616.6	594.2	586.5	681.3	621.3	586.0	615.8
Investment in foreign treasury bills	6.7	11.6	26.3	54.7	187.1	222.0	237.5	259.6	321.9	359.4	416.9	407.2	415.2
Claims on general government	18.6	15.7	14.9	15.1	15.1	15.2	15.2	15.0	15.4	15.9	16.2	16.6	15.8
Claims on deposit money banks	16.0	29.9	43.1	15.7	18.1	19.8	13.8	13.0	3.9	19.9	23.5	34.8	24.3
Of which: Lombard	0.4	0.0	0.1	0.2	0.0	0.0	1.3	0.0	0.0	1.1	0.2	1.0	0.6
Liquidity loans	13.6	13.8	7.7	1.3	0.0	0.0	1.6	0.5	0.0	7.4	11.9	1.0	1.5
Repurchase agreements	1.5	12.6	16.8	13.6	13.7	19.4	9.7	12.0	3.5	11.0	10.9	25.5	17.5
Liabilities	**140.1**	**240.2**	**312.4**	**364.1**	**597.7**	**603.7**	**663.0**	**640.2**	**618.7**	**730.1**	**674**	**651.1**	**669.6**
Reserve money	50.2	79.1	99.1	114.5	140.7	138.1	150.8	157.6	167.5	165.0	181.2	187.1	184.5
Of which: Currency outside banks	34.6	50.6	63.9	71.4	85.7	80.4	94.4	98.5	104.7	105.6	118.2	116.0	117.0
Deposit money banks' deposits	15.6	28.5	35.2	43.1	55.1	57.7	56.4	59.0	62.9	59.4	63.0	71.1	67.5
Other demand deposits	0.9	1.1	1.4	1.6	2.1	3.3	2.7	4.2	3.5	4.4	3.6	4.5	3.8
Bonds	50.4	99.8	126.7	178.4	365.0	377.4	397.8	390.2	362.5	389.1	342.6	327.3	346.5
Import and restricted deposits	0.4	1.8	1.9	0.9	2.3	2.0	16.8	2.7	4.3	4.7	4.5	4.6	4.5
Foreign liabilities	1.5	0.9	0.5	0.2	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.2	0.2
Central government deposits	6.0	27.4	47.5	22.3	23.1	14.6	26.1	24.9	18.5	90.2	54.5	37.6	33.4
Capital accounts	24.3	25.8	31.1	41.9	58.1	57.5	57.3	57.1	57.4	54.4	54.7	54.9	55.1
Of which: SDR allocation	4.6	4.7	4.8	5.2	5.8	5.9	5.7	5.5	5.8	6.1	6.4	6.6	6.8
Other items (net)	4.9	-0.3	0.6	0.7	1.1	3.6	1.7	-7.3	-0.4	18.4	29.5	31.3	38.0
Memorandum items:													
Reserve money	50.2	79.1	99.1	114.5	140.7	138.1	150.8	157.6	167.5	165.0	181.2	187.1	184.5
NFA	102.5	189.1	250.3	329.6	559.2	561.3	624.4	601.5	593.9	690.4	630.8	595.9	625.7
NDA	-52.3	-110.0	-151.3	-215.0	-418.5	-423.2	-473.6	-443.9	-426.4	-525.4	-449.6	-408.8	-441.2
						(Annual percentage change)							
Reserve money growth	38.5	57.6	25.2	15.6	22.9	20.2	20.7	24.9	19.1	19.5	20.2	18.7	17.0
Contributions to growth:													
NFA	87.4	172.6	77.3	80.0	200.5	152.7	135.2	44.1	24.7	93.5	4.3	-3.5	6.6
NDA	-48.9	-115.0	-52.1	-64.4	-177.6	-132.5	-114.6	-19.1	-5.6	-74.0	15.9	22.3	10.4

Source: Bank of Slovenia.

Table A7. Slovenia: Monetary Survey

	1993	1994	1995	1996	1997	1998	1999 November
	(In billions of tolars, end of period)						
Net Foreign Assets	99.0	269.3	335.1	457.2	636.9	668.8	693.1
Assets	240.2	429.4	522.5	663.8	843.2	884.0	949.6
Bank of Slovenia	104.0	190.1	250.9	329.8	559.3	594.1	625.9
Banks	188.8	291.0	301.7	365.2	316.3	322.8	358.1
Less Claims on NBY	-52.6	-51.7	-30.1	-31.1	-32.3	-33.0	-34.4
Liabilities	-141.2	-160.1	-187.4	-206.6	-206.4	-215.1	-256.5
Bank of Slovenia	-1.5	-0.9	-0.5	-0.2	-0.1	-0.2	-0.2
Banks	-139.6	-159.2	-186.9	-206.4	-206.3	-215.0	-256.3
Net Domestic Assets	411.3	459.8	596.4	674.7	763.2	1019.1	1188.0
Claims on government (net)	220.9	243.4	283.3	262.0	312.0	359.6	365.6
Credit	226.9	270.9	330.8	334.9	388.0	423.3	449.2
Central Government	18.8	15.6	15.3	15.5	15.7	16.0	16.5
Other General Government	208.1	255.2	315.5	319.4	372.3	407.3	432.7
Deposits	-6.0	-27.4	-47.5	-72.9	-76.0	-63.7	-83.5
Claims on enterprises	261.2	325.9	433.6	509.6	570.2	736.8	810.5
Claims on individuals	55.2	91.6	160.5	207.2	240.9	302.8	435.7
Claims on nonbanks financial institutions	2.0	5.5	12.7	9.4	12.4	20.4	41.2
Claims on National Bank of Yugoslavia	52.6	51.7	30.1	31.1	32.3	33.0	34.4
Bonds	-31.1	-36.8	-57.1	-52.2	-66.8	-73.2	-64.3
Restricted Deposits	-1.9	-6.1	-5.7	-4.0	-5.4	-8.5	-8.0
Other items (net)	-147.6	-215.5	-261.0	-288.5	-332.4	-351.7	-427.2
Broad Money (M3)	510.3	729.1	931.5	1131.9	1400.0	1688.0	1881.1
Currency	32.7	47.3	60.0	66.8	78.1	93.7	103.0
Demand deposits	80.3	117.0	141.3	164.9	190.1	236.7	264.1
Bank of Slovenia	0.9	1.1	1.4	1.6	2.1	3.5	3.8
Banks	79.4	115.9	140.0	163.3	187.9	233.2	260.2
Quasi money	397.3	564.8	730.2	900.2	1131.8	1357.6	1513.9
Tolar deposits	187.0	319.3	404.8	515.8	727.2	929.5	1014.1
Foreign currency deposits	210.3	245.5	325.4	384.4	404.7	428.1	499.8
			(Annual percentage change)				
M1 (= currency + demand deposits)	43.3	45.3	22.5	15.1	15.7	23.2	18.7
M2 (= M1 + tolar deposits)	62.6	61.8	25.9	21.8	34.1	25.4	13.5
M3 (= M2 + foreign currency deposits)	63.2	43.3	28.1	20.5	24.3	19.8	15.2
				(In percent)			
Contributions to M3 growth							
Net foreign assets	147.6	172.0	24.4	36.4	39.3	5.0	-0.8
Net domestic assets	51.3	11.8	29.7	13.1	13.1	33.5	26.7

Source: Bank of Slovenia.

Table A8. Slovenia: Balance of Payments

	1993	1994	1995	1996	1997	1998	1999 Jan-Nov
				(In millions of U.S. dollars)			
Current account	192	600	-23	39	37	-4	-463
Trade balance	-154	-338	-954	-882	-772	-775	-981
Exports f.o.b	6,083	6,830	8,350	8,370	8,407	9,095	7,902
Imports f.o.b.	-6,237	-7,168	-9,305	-9,252	-9,179	-9,870	-8,882
Services	375	676	631	704	590	514	322
Exports	1,393	1,804	2,023	2,127	2,043	2,047	1,778
of which: travel	734	911	1,082	1,230	1,188	1,117	463
Imports	-1,017	-1,129	-1,392	-1,423	-1,453	-1,534	-1,456
Income, net	-51	170	210	155	131	146	87
Current transfers, net	22	92	91	62	88	112	110
Capital and financial account	-90	121	404	540	1,184	-9	315
Direct investment, net	111	131	170	178	295	154	38
Portfolio investment, net	3	-33	-14	637	236	90	371
Other investment, net	-209	27	264	-270	658	-249	-93
Government	79	82	130	-74	-5	-22	18
Non government	-287	-55	134	-196	662	-227	-111
Bank of Slovenia	-14	-103	-70	129	-9	-5	-6
Private sector	-274	49	204	-324	671	-222	-106
Net errors and omissions	10	-77	-145	8	66	171	47
Overall balance	112	645	235	587	1,287	158	-100
Change in official reserves	-112	-645	-235	-587	-1,287	-158	100
				(Percentage change)			
Memorandum items:							
Merchandise exports	-9.0	12.3	22.3	0.2	0.4	8.2	-5.6
Merchandise imports	5.9	14.9	29.8	-0.6	-0.8	7.5	-1.7
Tourism receipts	9.4	24.1	18.8	13.6	-3.4	-6.0	-9.9
				(In percent of GDP)			
Trade balance	-1.2	-2.3	-5.1	-4.7	-4.2	-4.0	...
Current account	1.5	4.2	-0.1	0.2	0.2	0.0	...
Capital and financial account 1/	-0.6	0.8	2.2	2.9	6.5	0.0	...
Change in official reserves	-0.9	-4.5	-1.3	-3.1	-7.1	-0.8	...
				(In millions of U.S. dollars, end of period)			
Foreign exchange reserves							
Bank of Slovenia	770	1,480	1,802	2,279	3,297	3,573	3,073
(in months of MGNFS)	1.3	2.1	2.0	2.6	3.7	3.8	3.6
Deposit money banks	796	1,283	1,624	1,845	1,080	1,209	1,105
(in months of MGNFS)	1.3	1.9	1.8	2.1	1.2	1.3	1.3
				(In billions of U.S. dollars)			
Gross domestic product	12.67	14.38	18.74	18.88	18.21	19.52	...

Source: Bank of Slovenia.

1/ Data for 1996 exclude debt issued following the 1988 New Financing Agreement.

Table A9. Slovenia: Direction of Trade Exports

	1993	1994	1995	1996	1997	1998	1999 Jan-Nov
	(In millions of U.S. dollars)						
EU	3,847	4,480	5,575	5,367	5,320	5,928	5,205
of which:							
Austria	303	373	535	551	565	621	573
France	528	586	681	598	463	748	442
Germany	1,798	2,068	2,508	2,545	2,459	2,572	2,417
Italy	756	923	1,212	1,103	1,248	748	1,093
United Kingdom	148	208	229	162	150	161	155
EFTA 1/	65	75	87	83	87	98	102
of which: Switzerland	52	58	71	68	70	78	80
CEFTA 2/	261	308	403	451	504	608	565
Czech and Slovak Republics	86	113	184	204	204	223	199
Hungary	88	99	115	105	120	141	133
Poland	87	96	105	142	155	181	173
Others	1,910	1,965	2,251	2,410	2,458	2,416	1,968
of which:							
U.S.A.	216	250	261	246	243	230	237
Former U.S.S.R.	298	316	375	390	432	307	165
Countries of former SFRY	964	1,040	1,209	1,385	1,387	1,287	1,190
of which: Croatia	739	738	891	855	837	815	626
Total	6,083	6,828	8,316	8,310	8,369	9,051	7,839
	(In percent)						
EU	63.2	65.6	67.0	64.6	63.6	65.5	66.4
of which:							
Austria	5.0	5.5	6.4	6.6	6.8	6.9	7.3
France	8.7	8.6	8.2	7.2	5.5	8.3	5.6
Germany	29.6	30.3	30.2	30.6	29.4	28.4	30.8
Italy	12.4	13.5	14.6	13.3	14.9	8.3	13.9
United Kingdom	2.4	3.0	2.8	1.9	1.8	1.8	2.0
EFTA	1.1	1.1	1.0	1.0	1.0	1.1	1.3
of which: Switzerland	0.9	0.8	0.9	0.8	0.8	0.9	1.0
CEFTA	4.3	4.5	4.8	5.4	6.0	6.7	7.2
Czech and Slovak Republics	1.4	1.7	2.2	2.5	2.4	2.5	2.5
Hungary	1.4	1.4	1.4	1.3	1.4	1.6	1.7
Poland	1.4	1.4	1.3	1.7	1.9	2.0	2.2
Others	31.4	28.8	27.1	29.0	29.4	26.7	25.1
of which:							
U.S.A.	3.6	3.7	3.1	3.0	2.9	2.5	3.0
Former U.S.S.R.	4.9	4.6	4.5	4.7	5.2	3.4	2.1
Countries of former SFRY	15.8	15.2	14.5	16.7	16.6	14.2	15.2
of which: Croatia	12.1	10.8	10.7	10.3	10.0	9.0	8.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Statistical Office and Bank of Slovenia.

1/ EFTA countries are Iceland, Liechenstein, Norway and Switzerland.
2/ CEFTA countries are Bulgaria, Czech Republic, Hungary, Poland, Romania and Slovakia.

Table A10. Slovenia: Direction of Trade, Imports (c.i.f.)

	1993	1994	1995	1996	1997	1998	1999 Jan-Nov
	(In millions of U.S. dollars)						
EU	4,266	5,052	6,532	6,360	6,312	7,017	6,240
of which:							
Austria	553	756	919	835	789	802	732
France	522	613	798	925	980	1,258	993
Germany	1,626	1,734	2,206	2,044	1,936	2,089	1,833
Italy	1,051	1,258	1,611	1,593	1,558	1,697	1,537
United Kingdom	103	130	190	208	241	233	266
EFTA 1/	135	188	237	249	194	208	199
of which: Switzerland							
Switzerland	127	154	199	178	162	172	183
CEFTA	331	451	634	616	705	778	759
Czech and Slovak Republic	152	236	329	329	337	354	340
Hungary	165	193	267	239	293	244	243
Poland	14	22	38	48	58	78	100
Others	1,769	1,613	2,089	2,197	2,155	2,108	1,858
of which:							
Japan	125	126	157	163	161	175	178
U.S.A.	188	197	291	325	287	296	269
Former U.S.S.R.	217	169	275	236	284	210	174
Countries of former SFRY	696	584	671	709	594	593	520
of which: Croatia	595	498	576	590	466	432	404
Total imports	6,501	7,304	9,492	9,421	9,366	10,111	9,056
	(In percent)						
EU	65.6	69.2	68.8	67.5	67.4	69.4	68.9
of which:							
Austria	8.5	10.4	9.7	8.9	8.4	7.9	8.1
France	8.0	8.4	8.4	9.8	10.5	12.4	11.0
Germany	25.0	23.7	23.2	21.7	20.7	20.7	20.2
Italy	16.2	17.2	17.0	16.9	16.6	16.8	17.0
United Kingdom	1.6	1.8	2.0	2.2	2.6	2.3	2.9
EFTA 1/	2.1	2.6	2.5	2.6	2.1	2.1	2.2
of which: Switzerland	2.0	2.1	2.1	1.9	1.7	1.7	2.0
CEFTA	5.1	6.2	6.7	6.5	7.5	7.7	8.4
Czech and Slovak Republic	2.3	3.2	3.5	3.5	3.6	3.5	3.8
Hungary	2.5	2.6	2.8	2.5	3.1	2.4	2.7
Poland	0.2	0.3	0.4	0.5	0.6	0.8	1.1
Others	27.2	22.1	22.0	23.3	23.0	20.8	20.5
of which:							
Japan	1.9	1.7	1.7	1.7	1.7	1.7	2.0
U.S.A.	2.9	2.7	3.1	3.4	3.1	2.9	3.0
Former U.S.S.R.	3.3	2.3	2.9	2.5	3.0	2.1	1.9
Countries of former SFRY	10.7	8.0	7.1	7.5	6.3	5.9	5.7
of which: Croatia	9.2	6.8	6.1	6.3	5.0	4.3	4.5
Total imports	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Statistical Office and Bank of Slovenia.

1/ EFTA countries are Iceland, Liechenstein, Norway and Switzerland.
2/ CEFTA countries are Bulgaria, Czech Republic, Hungary, Poland, Romania and Slovakia.

Table A11. Slovenia: Social Indicators

	Latest single year, 1992-97	
	Slovenia	European Union
AGE STRUCTURE OF THE POPULATION	(in percent of total population)	
Population 0-14 years old	17.4	18.9
Population 15-64 years old	70.2	66.8
Population 65 and over years old	12.8	14.3
SOCIAL INDICATORS		
Health		
Life expectancy at birth, female, in years	78.6	81.0
Life expectancy at birth, males, in years	71.0	74.1
Infant mortality rate, per 1,000 live births	5.2	5.2
Practising physicians per 1,000 population	2.2	3.2
Education		
Gross enrollment ratio	(in percent of relevant age group)	
Primary level	97.9	105.5 1/ 2/
Secondary level	91.7	117.3 1/ 3/
Tertiary level	36.4	48.8 1/
Public Expenditure	(in percent of GDP)	
Health	7.1	6.1 1/
Education	5.8	5.6 1/

Sources: 1999 OECD Health Database CD-ROM; 1999 World Development Indicators CD-ROM, World Bank.

1/ Luxembourg not included in these aggregates.

2/ Net enrollment ratios exceeding 100 indicate discrepancies between the estimates of school-age population and reported enrollment data.

3/ In some of the EU countries, it includes training for the unemployed.