

MACROECONOMIC POLICIES FOR TURKEY'S ACCESSION TO THE EU

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This chapter investigates the macroeconomic policies appropriate for Turkey both before and after its accession to the European Union (EU).¹ The first section of the chapter considers the recent macroeconomic developments in Turkey, and the second examines the macroeconomic policy framework for EU membership. The third section analyzes the macroeconomic challenges faced by Turkey, emphasizing the issues related to inflation, fiscal policy, public debt, sustainability of current account, and exchange rate regimes. The final section offers conclusions.

Macroeconomic Developments in Turkey

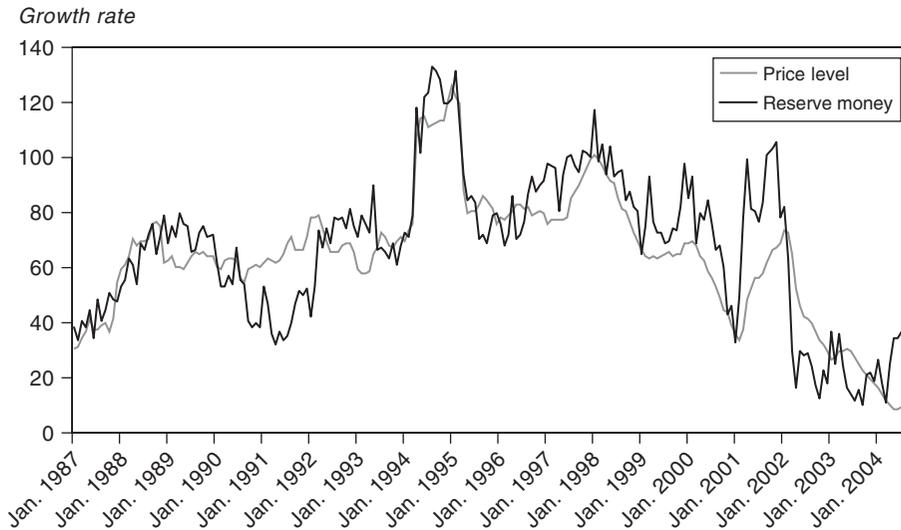
Over the past decade, economic crises began to affect the Turkish economy with increasing frequency. Periods of economic expansion alternated with periods of equally rapid decline. Although inflation during the period 1990–2000 fluctuated between 54.9 percent and 106.3 percent, the average inflation rate amounted to 75.2 percent. Currently, Turkey is in the midst of a determined campaign to turn around decades of weak performance stemming from pervasive structural rigidities and weak public finances. The past few years have witnessed three major attempts at addressing underlying weaknesses. The first was during 2000 under the three-year standby agreement initiated in December 1999 after a significant drop in output caused by mostly external factors, including the earthquake.

Despite some notable achievements, a worsening current account and a fragile banking system led in late 2000 to a liquidity crisis that turned into a full-blown banking crisis in February 2001. In response, the government decided to abandon the crawling peg regime and floated the currency. In May 2001, the International Monetary Fund (IMF) increased its assistance to Turkey under a new standby arrangement. But just as the revised program was beginning to show results, the terrorist events of September 11, 2001, in the United States triggered the reemergence of serious financing problems. In February 2002, the IMF approved a new three-year standby credit for Turkey to support the government's economic program. With the implementation of the stabilization program, Turkey envisages a gradual but steady improvement in its economic conditions. In August 2004 Turkey approached the IMF for a final three-year standby agreement—an exit program from instability and excessive debt.

Monetary Developments and Inflation

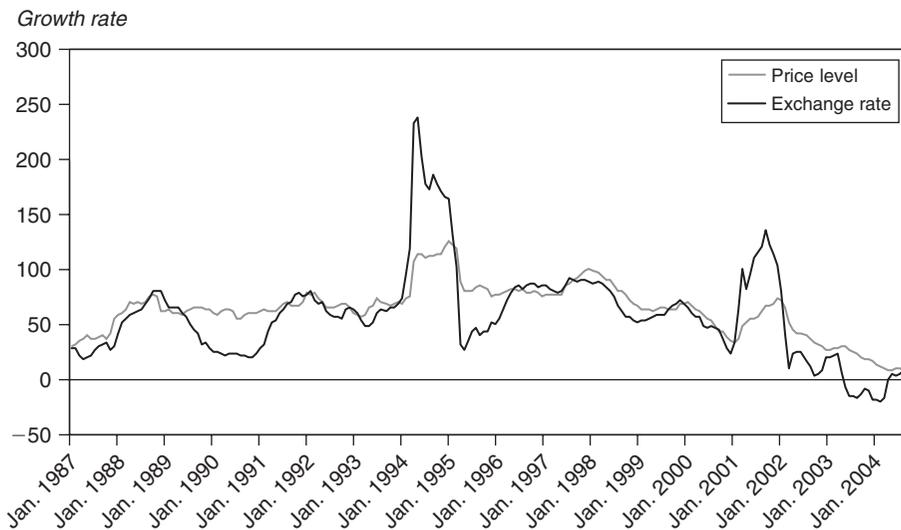
During the past two decades, Turkey has experienced high and variable inflation. There is strong evidence that, in the medium and long term, a close correlation exists between the rate of growth of monetary aggregates and inflation. This correlation appears in figure 1.1 between the monthly series of annual consumer price index (CPI) inflation and the monthly series of the annual growth rate of base money over the period January 1987–September 2004.

FIGURE 1.1 Inflation and the Growth Rate of Reserve Money: January 1987–September 2004



Source: Central Bank of Turkey.

FIGURE 1.2 Inflation and the Rate of Depreciation of the Turkish Lira: January 1987–September 2004



Source: Central Bank of Turkey.

A close relation also exists between the annual inflation rate and the annual rate of change in the exchange rate on a monthly basis over the same period (see figure 1.2).²

Recent empirical studies of Turkish inflation have drawn attention to a set of factors that affect inflation in Turkey.³ Besides the obvious relation between the aggregate demand and supply, public sector deficits and exchange rate developments seem to be the major factors affecting the rate of inflation.

In equation 1.1, the relation between total demand and supply is proxied by the output gap. Almost all researchers agree that, besides the output gap, public sector deficits play a significant role in explaining inflation in Turkey. We model the effect of public sector deficits on inflation through two variables. The first variable is the noninterest expenditures. In contrast to interest expenditures, this portion of the public expenditures is determined by the government and is the major factor behind the changes in public sector deficits. The

TABLE 1.1 Estimated Inflation (Monthly)

	Coefficient	t-Statistic
Constant	0.01	1.872
Public price ($d \log(p_{public})$)	0.31	14.35
Exchange rate ($d \log(E) + d \log(E(-1))$)	0.04	2.753
Output gap (OG)	0.033	2.567
Noninterest expenditures ($NIEXP$)	0.012	1.822
Base money ($d \log(M(-1)) + d \log(M(-2))$)	0.025	1.963
CPI inflation ($d \log(CPI(-12))$)	0.192	4.282
Dummy	-0.016	-6.072
AR(1)	0.463	6.364
R-squared: 0.802		
Adjusted R-squared: 0.792		
Durbin Watson statistic: 1.884		

Note: The dependent variable was $d \log(CPI)$, and the estimation period was January 1990–November 2003. The diagnostic tests for this regression indicate that there is no evidence of deviation from normality, autocorrelation, and heteroscedasticity.

Source: The authors.

second variable is the public sector component of the wholesale price index. The movement of this variable is almost totally determined by administrative decisions. Adjustments in these prices, regardless of their relation with public sector deficits, have an impact on inflation. Because most of the goods and services produced by the public sector are used as inputs, changes in these prices have an impact on private sector costs. Yet as these changes are publicly announced, they have a signaling effect. In this sense, the role of public sector prices is very similar to that of the exchange rate. The third variable influencing inflation in the equation is the exchange rate, which affects the prices of imported commodities. Fourth, in this equation the effect of monetary expansion on inflation is captured by movements in the base money. Thus one can now estimate Turkish inflation by using monthly data to solve

$$(1.1) \quad d \log(CPI) = \beta_0 + \beta_1 d \log(p_{public}) + \beta_2 (d \log(E) + d \log(E(-1))) + \beta_3 OG(-1) + \beta_4 NIEXP + \beta_5 (d \log(M(-1)) + d \log(M(-2))) + \beta_6 d \log(CPI(-12)) + \beta_6 Dummy$$

where CPI denotes the consumer price index, p_{public} the public sector component of the wholesale price index, E the Turkish lira/U.S. dollar exchange rate, OG the output gap measured by the difference of

the monthly industrial production index from its trend, $NIEXP$ the moving average of the consolidated budget noninterest expenditures over the past 12 months, M the base money supply, and $Dummy$ the dummy variable taking the value of 1 during the summer months of June, July, and August of each year and 0 otherwise. When we checked all the variables used in the estimation for unit roots, we learned that the series as used in the equation are all stationary. The results of the estimation are presented in table 1.1.

To deal with the problem of identifying the long-run determinants of inflation, we carried out the Johansen cointegration test with the variables that were significant in the short-term inflation equation and that were found to be $I(1)$ —that is, CPI , $NIEXP$, M , p_{public} , and E .⁴ The significant cointegration equation found among four of these variables can be expressed as

$$(1.2) \quad CPI = -2.234 + 0.000357 M + 0.279695 p_{public} + 0.000315 E$$

As one would expect from economic theory, base money and exchange rate play an important role in explaining inflation in the long run. By contrast, the presence of the public sector component of the wholesale price index reflects an invariant characteristic of policymaking in Turkey. The rather popular political instrument used to achieve short-term

objectives seems to have had a strong inflationary impact in the long run.

Real Exchange Rate and Current Account

Until the end of the 1970s, Turkey followed a fixed and multiple exchange rate policy while experiencing relatively high inflation rates. The policy led to a loss of competitiveness and eventually to the foreign exchange crisis of the late 1970s. The gross national product (GNP) shrank by 0.5 percent in 1979 and by 2.8 percent in 1980. With the stabilization measures of 1980, Turkey devalued its lira by 100 percent and eliminated the multiple exchange rate system, except for imports of fertilizers and fertilizer inputs. After May 1981, the exchange rate was adjusted daily against major currencies to maintain the competitiveness of Turkish exports. Multiple currency practices were phased out during the first two years of the 1980 stabilization program, and the government pursued a policy of depreciating the real exchange rate (RER)—on average by about 6 percent annually over the period 1980–88.⁵

In January 1984, domestic commercial banks were allowed to engage in foreign exchange operations within certain limits, and restrictions on foreign travel and investment from abroad were eased and simplified. Determination of the exchange rate was further liberalized by permitting banks to set their own rates within a specified band around the central bank rate. In August 1988, major reform was introduced, and a system in which the market set foreign exchange rates was adopted. In 1989 foreign exchange operations and international capital movements were liberalized entirely.⁶

A drawback of the RER depreciation policy pursued during the 1980s was the decline in real wages, measured in terms of foreign currency.⁷ By the second half of the 1980s, popular support for the government had begun to fall off. In the local elections of March 1989, the governing political party suffered heavy losses. To increase political support, the government conceded substantial pay increases during collective bargaining in the public sector. Pressure then built up in the private sector to arrive at similarly high wage settlements, real wages began to increase, and the RER started to appreciate.

According to the government, the appreciation of the RER after 1989 stemmed from market forces. During the 1990s, Turkey's public finances

deteriorated considerably. The large public sector deficits were financed by borrowing from the market at very high real interest rates. Significant capital flowed into the country because it was offering not only high real interest rates but also the prospect of steady real appreciation of the exchange rate. Thus the government's implicit commitment to the RER appreciation insured the private sector, domestic and foreign, against currency risk. It encouraged capital inflows from abroad and lending to the public sector, giving rise to the phenomenon of large, arbitrage-related, short-term capital inflows.

The policy pursued during the first half of the 1990s was not sustainable. By 1993 the current-account-deficit-to-GDP (gross domestic product) ratio had reached 3.6 percent. In 1994 the country faced balance of payments crises from which the GDP shrank by 5.5 percent. But with the introduction of stabilization measures, the trend in the RER reversed. The RER depreciated by 64 percent during January 1994 and April 1994. The country had to reverse its economic policies, however, because of the relatively weak coalition governments. The RER began to appreciate again after April 1994, and by September 1995 it had appreciated by about 23.5 percent.

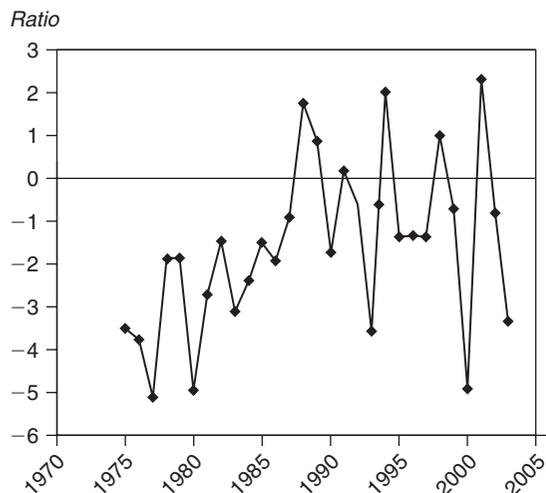
Between 1995 and 1997, the economy went through a boom period of above-trend growth, only to find itself badly hit in 1998 by the Russian crisis. In August 1999, a severe earthquake hit the Marmara area of Turkey, and another large shock hit the Bolu area in November 1999. Because of these shocks, real GDP shrank by 4.7 percent in 1999. At the end of that year, Turkey embarked on an ambitious stabilization program. Central to the program has been the policy of using a predetermined exchange rate path as a nominal anchor for reducing inflationary expectations.

During 2000, the RER appreciated considerably, which aggravated further the current account deficits, leading to concerns about the sustainability of the exchange rate regime. The current-account-deficit-to-GDP ratio reached 4.9 percent in 2000. This episode ended with a severe currency crisis in February 2001. There was a serious run on the Turkish lira (TL), interest rates skyrocketed, and foreign exchange reserves began to decline rapidly. The government decided to abandon the crawling peg regime and to float the currency. The exchange rate then depreciated sharply.

On May 15, 2001, the IMF increased its assistance under a new standby arrangement. This program aimed to strengthen the balance of public finances in a way that would prevent deterioration in the future. During 2001, Turkey introduced a set of structural reforms. But the terrorist attacks of September 11, 2001, threatened the progress of the reforms. Turkey responded with a strengthened medium-term program intended to clean up the banking sector, consolidate fiscal adjustments, and achieve disinflation, and in February 2002 the IMF approved a three-year standby credit for Turkey to support the government's economic program. During 2001, the GNP contracted by 9.5 percent, and the loss in employment was put at more than 1 million.⁸ Toward the end of 2001, the RER began to appreciate again. With the appreciation of the RER, considerable economic recovery was observed during 2002–04.

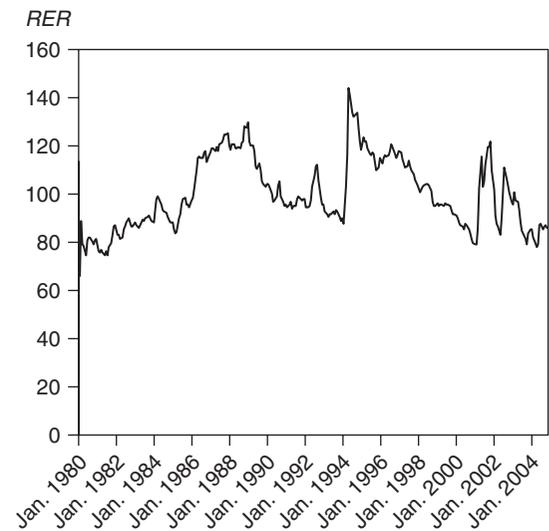
Figure 1.3 shows developments in the current account-to-GDP ratio over the period 1975–2003. Currency crises arose in the late 1970s, 1994, and 2001. The figure indicates that the probability of a balance of payments crisis increases in Turkey as the current-account-deficit-to-GDP ratio increases above the critical level of 5 percent.⁹ By October 2004, the annual current account deficit had reached \$14.17 billion, and the current-account-deficit-to-GDP ratio had increased to about 5 percent by the third quarter of 2004.

FIGURE 1.3 Current-Account-to-GDP Ratio, 1975–2004



Source: Central Bank of Turkey.

FIGURE 1.4 Real Exchange Rate, 1980–2004



Note: An increase in the real exchange rate indicates its depreciation.

Source: The authors.

Figure 1.4 shows the time path of the RER over the past two decades, and it reveals four episodes of RER developments. After the foreign exchange crisis of the late 1970s, the RER began to depreciate sharply in response to the stabilization measures of 1980. It continued to depreciate until 1988, when it began to appreciate—that is, until 1994, when the country was faced with another currency crisis. In 1994 the RER depreciated sharply, but it appreciated again from April 1994 to February 2001, when the country was faced with yet another currency crisis. After the sharp depreciation of the RER from February 2001 to April 2001, it began to appreciate, especially after October 2001. It appreciated until March 2004 by about 36.3 percent. During March 2004 and May 2004, the RER depreciated by about 11 percent, and thereafter it stayed relatively constant until October 2004.

Fiscal Developments

Table 1.2 shows the structure of the revenues and expenditures of the public sector from 1998 to 2002. The public sector consists of the central government, revolving funds, social security institutions, extrabudgetary funds, local governments, and state economic enterprises (SEEs). The table reveals that, on average, during 1998–2002 revenues made up 29.24 percent of GNP, expenditures 42.4 percent

TABLE 1.2 Structure of Revenues, Expenditures, and Public Sector Borrowing Requirements (PSBR), 1998–2002

	Share of Total Revenue					Share of Total Expenditure					Revenue/GNP	Expenditure/GNP	PSBR/GNP
	Taxes	Nontax Income	Factor Income	Social Funds	Privatization Revenues	Current Expenditures	Investment Expenditures	Interest Payments	Other Transfers	Stock Changes Fund			
1998	80.62	4.94	19.93	−9.27	3.78	31.63	19.43	35.88	9.89	3.16	25.56	34.99	9.42
1999	87.01	5.93	18.60	−11.84	0.31	32.45	16.17	37.21	10.82	3.35	25.57	41.09	15.52
2000	82.51	7.37	11.41	−6.30	5.00	29.19	16.34	41.30	11.07	2.10	30.45	42.23	11.78
2001	81.64	6.63	16.31	−7.34	2.76	26.41	11.21	49.31	9.80	3.27	33.26	49.65	16.39
2002	76.60	9.74	23.38	−10.24	0.53	28.74	14.21	44.66	10.82	1.57	31.38	44.06	12.68
Average	81.67	6.92	17.93	−9.00	2.48	29.68	15.47	41.67	10.48	2.69	29.24	42.40	13.16

Source: Turkish State Planning Organization.

of GNP, and public sector borrowing requirements (PSBR) 13.16 percent of GNP. Taxes are the main source of revenues, forming about 81.67 percent of the total; indirect taxes make up about 70 percent of tax revenue. Although factor incomes generated by the profits of SEEs have constituted, on average, 17.93 percent of total revenues, the social funds have not generated revenue; they have been subsidized from the budget. On the expenditures side, current expenditures and investments constitute, on average, 29.68 percent and 15.47 percent of total expenditures, respectively. The most important expenditure item during the period 1998–2002 was the interest payments—on average, they were 41.67 percent of total expenditures.

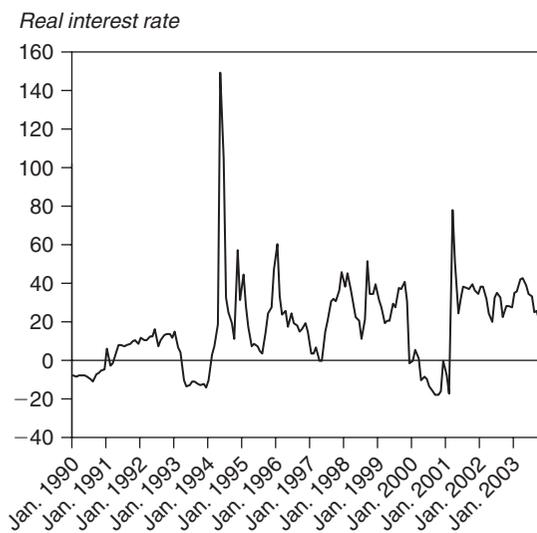
Public Sector Borrowing Requirements and Public Debt During the 1990s, the PSBR amounted on average to 12 percent of GNP. The high deficit incurred during the period was financed by borrowing from the market at very high real interest rates, as shown in figure 1.5.¹⁰ Table 1.3 reveals that between the end of 1995 and the end of 2001 Turkey's debt stock more than doubled in terms of the debt-to-GDP ratio and reached 95 percent at the end of 2001. In 2002 the debt stock shrank somewhat, but it remained at almost twice its level in 1995. By 2002

external and foreign exchange (FX) indexed debt had reached 59.4 percent of total debt.

The evolution of public debt is best explained by decomposing the annual change in debt into various components as shown in table 1.3. Concentrating on developments during the past two years, the World Bank (2003) notes that the debt-to-GNP ratio in 2001 alone rose by 37.6 percent. Although the country ran a primary surplus of 5.5 percent of its GNP with the introduction of the IMF stabilization program, three factors mainly contributed to the increase in the debt-to-GNP ratio: (1) the high interest rates prevailing in the country; (2) depreciation of the real exchange rate, leading to increases in the ratio of FX-denominated debt to GNP; and (3) the costs of the banking crisis. In response to the banking crisis, the government issued new bonds in order to recapitalize failing banks. The bonds issued for this purpose amounted to 20 percent of GNP (table 1.3). In 2002 the debt picture improved, but this time it stemmed mainly from the real appreciation of the real exchange rate.

The PSBR-to-GNP and debt-to-GNP ratios given earlier are based on data from Turkey's State Planning Organization (SPO). Two other sets of data on the PSBR-to-GNP ratio, and thus on the debt-to-GNP ratio in Turkey, are also available—the first from the IMF and the second from the EU, consistent with the European System of Accounts 1995 (ESA 95) codes. The differences among the three sets of data are mainly attributable to the large duty losses. During the 1990s, the state banks faced unrecovered costs from duties carried out on behalf of the government, and they covered their financing needs from markets by borrowing at very high interest rates and at short maturities. The direct subsidies given through the state banks to farmers and small business were not shown in the government budget figures of the SPO; instead, they were shown on state banks' balance sheets as performing assets accruing interest income. The PSBR-to-GNP ratios of the SPO do not reflect the subsidy components given through the state banks, whereas the figures estimated by the IMF and EU do. A close look at the data in table 1.4 will reveal that the public sector, according to the IMF definition, ran a deficit equal to 18.9 percent in 2000, 21.1 percent in 2001, 12.1 percent in 2002, and 10 percent in 2003. As a result, the net debt-to-GNP ratio, according to the IMF definition, increased

FIGURE 1.5 Real Interest Rate, January 1990–October 2003



Note: Some data are missing in this figure because auctions could not be held during the indicated months.

Source: The authors.

TABLE 1.3 Debt and Fiscal Sustainability, 1994–2002

	1994	1995	1996	1997	1998	1999	2000	2001	2002
<i>Stock of public debt (% of GNP)</i>									
Domestic debt	14.0	12.2	20.5	20.4	24.4	40.9	39.1	57.2	47.7
FX-denominated/indexed							2.7	20.4	15.3
Floating rate								28.6	20.5
External debt	30.7	29.1	26.0	22.5	19.3	20.1	18.3	37.7	32.1
External + FX-denominated/indexed	30.7	29.1	26.0	22.5	19.3	20.1	21.0	58.1	47.4
Total debt	44.7	41.3	46.5	42.9	43.7	61.0	57.4	95.0	79.8
<i>Public debt dynamics (% of GNP)</i>									
Change in debt		−3.4	5.2	−3.6	0.8	17.3	−3.6	37.6	−15.2
Debt-creating items									
Interest payments		7.3	10.0	11.0	16.2	22.1	21.9	23.5	16.3
Debt-reducing items									
Primary balance		2.7	−1.2	−2.1	0.9	−2.0	2.7	5.5	3.9
Growth effect		1.7	1.5	2.0	0.9	−1.8	2.4	−3.9	4.8
Inflation effect		6.5	5.3	9.2	8.8	8.7	13.8	13.0	11.2
Revaluation effect		4.4	1.9	1.6	2.5	−1.2	3.8	−13.2	10.1
Seigniorage		3.0	2.4	2.9	2.4	3.2	1.8	1.4	1.5
Other		0.0	0.0	0.1	0.5	0.1	1.6	−18.1	−1.8
Privatization		0.0	0.0	0.1	0.5	0.1	1.6	1.9	0.1
Cost of financial sector bailout		0.0	0.0	0.0	0.0	0.0	0.0	−20.0	−1.9

Source: World Bank 2003.

TABLE 1.4 Ratios of Public Sector Borrowing Requirements (PSBR) and of Debt to GNP and GDP, 2000–03

	PSBR/GNP		PSBR/GDP	Debt/GNP		Debt/GDP
	SPO	IMF	EU	SPO	IMF	EU
2000	11.8	18.9	9.8	57.5	57.4	65.4
2001	16.4	21.1	15.9	91.0	93.9	102.6
2002	12.8	12.1	13.6	78.7	79.2	89.5
2003	9.4	10.0	10.1	70.5	70.9	80.2

Note: The debt/GNP figures of the IMF refer to the net debt of the public sector as a ratio of centered GNP, where centered GNP is defined as the sum of quarterly GNP in the last two quarters of the year and in the first two quarters of the next year. The debt/GDP figures of the EU refer to the ratio of the gross debt of the public sector to GDP.

Sources: IMF 2004; Turkish State Planning Organization (SPO) 2004; <http://www.treasury.gov.tr>.

from 57.4 percent in 2000 to 93.9 percent in 2001, and then decreased to 79.2 percent in 2002 and to 70.9 percent in 2003. Public debt, according to the IMF definition, is a net debt that is measured in percent of centered GNP, defined as the sum of quarterly GNP in the last two quarters of the year and in the first two quarters of the following year.¹¹ By contrast, the EU measures the debt in gross terms. Thus total gross public debt, according to the EU definition, decreased from 102.6 percent of GDP in 2001 to 89.5 percent in 2002 and 80.2 percent in 2003.

Structure of Taxes Because taxes constituted about 80.25 percent of total revenues during 2000–02, this section will consider the tax burden in Turkey, compare the composition of tax revenues in Turkey with that of tax revenues in the EU, and compare the main features of personal, corporate, and value added tax (VAT) systems in Turkey and the EU.

Turkey is an upper-middle-income country, whose per capita income falls at the lower end of those of this group of countries. A comparison of the central government tax revenues of Turkey with those of other countries reveals that Turkey has a relatively high tax burden in its per capita income group (see World Bank 2003). When compared with those of lower-middle-income countries, Turkey's tax burden is markedly above the revenue average of 13.6 percent of the lower-income group. It is also significantly above the average of 21.3 percent for all upper-middle-income countries. In fact,

TABLE 1.5 Total Tax Revenue as Percentage of GDP, 1998–2000

	1998	1999	2000
Austria	44.3	44.1	43.7
Belgium	45.8	45.4	45.6
Denmark	50.1	51.2	48.8
Finland	46.1	46.8	46.9
France	45.1	45.7	45.3
Germany	37.1	37.8	37.9
Greece	35.6	36.9	37.8
Ireland	31.7	31.3	31.1
Italy	42.5	43.3	42.0
Luxembourg	39.8	40.9	41.7
Netherlands	40.0	41.2	41.4
Portugal	33.3	34.1	34.5
Spain	34.0	35.0	35.2
Sweden	51.6	52.0	54.2
United Kingdom	36.9	36.4	37.4
Turkey	28.4	31.3	33.4

Source: OECD 2003.

it is comparable with that of Ireland (see table 1.5), but it is still below the tax/GDP figures in the member countries of the EU.¹²

Table 1.6, which shows the composition of tax revenues in Turkey and the EU, reveals that EU countries obtain a significantly larger percentage of tax revenues from social security and payroll taxes (32.7 percent) compared with Turkey (14.3 percent). In Turkey, the share of taxes on goods and services (35.7 percent) is higher than the similar share in the EU (28.8 percent).

TABLE 1.6 Revenue from Major Taxes as a Percentage of Total Tax Revenue, 1998

	Personal Income	Corporate Income	Social Security and Other Payroll	Property	Goods and Services	General Consumption Taxes
Austria	22.5	4.8	40.3	1.3	27.9	18.7
Belgium	30.7	8.5	31.5	3.2	24.9	15.3
Denmark	51.6	5.6	3.9	3.6	33.2	19.6
Finland	32.3	9.0	25.2	2.4	30.7	18.5
France	17.4	5.9	39.5	7.3	26.6	17.5
Germany	25.0	4.4	40.4	2.4	27.4	17.9
Greece (1997)	13.2	6.4	32.3	3.8	41.0	22.6
Ireland	30.9	10.7	13.8	5.2	38.7	22.2
Italy	25.0	7.0	29.5	4.8	27.4	14.2
Luxembourg	18.8	19.7	25.6	8.4	26.1	13.7
Netherlands	15.2	10.6	39.9	4.9	27.7	16.9
Portugal	17.1	11.6	25.5	2.9	41.3	23.3
Spain	20.8	7.3	35.2	6.0	29.4	16.6
Sweden	35.0	5.7	33.5	3.7	21.6	13.6
United Kingdom	27.5	11.0	17.6	10.7	32.6	18.1
EU	23.9	7.1	32.7	5.4	28.8	17.2
Turkey	27.0	5.8	14.3	2.8	35.7	30.0

Source: Noord and Heady 2001.

Table 1.7 compares for 2002 the personal tax, corporate tax, and VAT systems of Turkey and the EU countries. The table reveals that the average income tax and social security contribution rate on gross labor income in Turkey amounts to 43.2 percent, whereas the same tax rate is 25.8 percent in Ireland and 29.7 percent in the United Kingdom. The corporate income tax in Turkey is 44.1 percent, whereas it is 16 percent in Ireland and 30 percent in United Kingdom. By contrast, the VAT rate in Turkey is 18 percent, whereas it is 15 percent in Luxembourg and 16 percent in Germany and Spain. According to the table, tax rates are in general very high in Turkey. With such high tax rates, Turkey should have achieved a much higher total-tax-to-GNP ratio than the 31.8 percent achieved in 1999. Currently, the country has a large share of employment declared to be at the minimum wage because of attempts by both employees and employers to reduce their tax burden, and it has relatively large employment in the informal sector. As a result, Turkey's tax base is rather narrow.

Employment and Growth

Table 1.8, which shows developments in the labor market for 2001–03, reveals that Turkey, with a

population of 70.7 million and a labor force participation rate of 48.3 percent in 2003, has created jobs for about 21 million people. During 2003, 33.9 percent of the labor force was employed in agriculture, 18.2 percent in industry, and 47.9 percent in services. The unemployment rate was 10.5 percent. The average unemployment rate during 1990–2000 was 7.6 percent, but it increased considerably with the financial crisis of 2001.

These figures indicate that Turkey must create jobs for its unemployed workers, as well as for those entering the labor force for the first time at the average rate of 900,000 persons a year. In addition, Turkey has to increase the labor force participation rate from its current low level of 48.3 percent to the levels that prevailed at the beginning of the 1990s. At that time, the labor force participation rate was 56.5 percent. By contrast, the comparable level in the EU was about 63 percent. Job creation, then, is a major challenge that Turkey must meet over time.

The Turkish labor market is extremely flexible because of the country's formidable informal sector, whose wage-setting mechanism is quite different from that of the formal sector. The informal sector is largely free from most types of labor regulation, and it does not pay most taxes and related charges. Activities in this sector rely largely on the provision

TABLE 1.7 Personal Tax, Corporate Tax, and VAT System: Turkey and EU Countries, 2002

	Marginal Income Tax and Social Security Contribution Rate on Gross Labor Income	Average Income Tax and Social Security Contribution Rate on Gross Labor Income	Corporate Income Tax Rate	Standard VAT Rate
Austria	55.3	44.7	34.0	20.0
Belgium	66.7	55.6	40.2	21.0
Denmark	50.4	44.2	30.0	25.0
Finland	57.4	45.9	29.0	22.0
France	53.0	48.3	—	19.6
Germany	63.9	50.7	38.9	16.0
Greece	44.1	36.0	—	18.0
Ireland	33.9	25.8	16.0	21.0
Italy	54.5	46.2	—	20.0
Luxembourg	47.9	34.2	30.4	15.0
Netherlands	51.0	42.3	34.5	19.0
Portugal	39.4	32.5	33.0	19.0
Spain	45.5	37.9	35.0	16.0
Sweden	50.4	48.6	28.0	25.0
United Kingdom	39.2	29.7	30.0	17.5
Turkey	45.6	43.2	44.1	18.0

— Not available.

Note: The first two columns report marginal and average personal income tax and social security contribution rates for a single person without dependents at 100 percent of the average production wage. The corporate income tax rate for Turkey refers to the total effective tax burden of a nonpublicly owned company. In the case of a publicly owned company, the tax burden goes down to 36.7 percent.

Source: OECD tax database (<http://www.oecd.org>).

TABLE 1.8 Labor Market Indicators: Turkey, 2001–03

	2001	2002	2003
Population (thousands)	68,610	69,626	70,712
Population 15 and over (thousands)	47,158	48,041	48,912
Labor force (thousands)	23,491	23,818	23,640
Participation ratio (%)	49.8	49.6	48.3
Civilian employment (thousands)	21,524	21,354	21,147
Unemployment (thousands)	1,967	2,464	2,493
Unemployment rate (%)	8.4	10.3	10.5
<i>Employment by sector (thousands)</i>			
Agriculture	8,089	7,458	7,165
Industry	3,774	3,954	3,847
Services	9,661	9,942	10,135
<i>Sectoral distribution of employment (%)</i>			
Agriculture	37.6	34.9	33.9
Industry	17.5	18.5	18.2
Services	44.9	46.6	47.9

Source: Treasury statistics, 1980–2003.

of labor without formal employment contracts. Job insecurity is pervasive, and workers receive very few benefits from their employers. Because wages in the informal sector are determined by demand and supply conditions, the informal sector itself is flexible. By contrast, the formal sector observes labor regulations, and it pays all taxes and related charges such as social security contributions and payments to various funds. Thus, this sector is not as flexible as the informal sector. Until now, Turkey has successfully solved the unemployment problem by means of its large informal sector.¹³ Indeed, over time this sector has grown considerably through the lax enforcement of tax, social security, and labor laws. But the current system of formal and informal sectors, with the informal sector accounting for about 60 percent of total employment, does not seem to be sustainable in the long run.¹⁴

As for the growth of GDP, over the period 1950–2002, GDP increased at an average annual rate of 4.9 percent.¹⁵ However, over the same period the average growth rate declined. The growth rate of GDP was 7.1 percent during 1950–59, 5.4 percent during 1960–69, 4.7 percent during 1970–79, 4.1 percent during 1980–89, and 3.6 percent over the period 1990–2002. Besides experiencing decreasing average growth rates of real income, Turkey has recently faced greater economic volatility, because economic crises have begun to affect the Turkish economy with increasing frequency. As noted earlier, during the last decade periods of economic expansion have alternated with periods of equally rapid decline.

Macroeconomic Policy Framework for EU Membership

Upon accession, Turkey, according to Article 122 of the treaty establishing the European Community (hereafter known as the “Treaty”), will be treated as a “Member State with a derogation” until it fulfills the convergence criteria.¹⁶ The Central and Eastern European (CEE) countries, when signing the accession treaty, have accepted the goal of monetary union as part of the *acquis communautaire*, the entire body of legislation of the European Communities and Union. To become members of the European Economic and Monetary Union (EMU), the CEE countries must fulfill the convergence criteria, which involve conditions on price stability,

interest rate convergence, budget deficits, government debt, and exchange rate stability.¹⁷

Macroeconomic Policy Framework for EMU Members

On January 1, 1999, 11 of the 15 member countries of the EU entered the third and final stage of the process leading to the formation of the EMU. At that time, the exchange rates among the currencies of the participating countries were irrevocably fixed in relation to the new single currency, the euro, and the newly formed European Central Bank (ECB) had taken over responsibility for monetary policy in the Euro Area. Individual member countries of the EMU therefore no longer have control over either monetary policy or exchange rate policy; they have surrendered their sovereignty in monetary and exchange rate policy to the supranational authority, the ECB.

Monetary Policy The European System of Central Banks (ESCB) is composed of the European Central Bank and the national central banks (NCBs) of all 15 EU member states.¹⁸ Because not all members joined the monetary union from the outset, the term *Eurosystem* was adopted to describe the ECB and the NCBs of the 11 member states that have adopted the euro. All decisions related to the Eurosystem are made by the decision-making bodies of the ECB, the Executive Board, and the Governing Council. The Executive Board comprises the president and the vice president of the ECB and four other members. It implements monetary policy in accordance with the guidelines and decisions laid down by the Governing Council. The Governing Council comprises the members of the Executive Board and the governors of the NCBs participating in the Euro Area. It is the primary decision-making body of the ECB.

The Treaty specifies that the main task of the Eurosystem is to deliver price stability (Article 105). According to Article 107 of the Treaty, the Eurosystem is solely responsible for the Euro Area’s single monetary policy, and it is to pursue the goal of price stability free from political pressure by EU institutions, interest groups, or individuals. The Treaty does not precisely define price stability. The Eurosystem interprets it as a year-to-year increase in the Harmonised Index of Consumer Prices (HICP)

for the Euro Area of below 2 percent (European Central Bank 2003b), which is to be maintained over the medium term. The phrase “below 2 percent” delineates the upper bound for the rate of measured inflation in the HICP.

To achieve price stability, the Eurosystem uses two pillars. The first pillar is what the Eurosystem calls “economic analysis.” It consists of a broadly based assessment of the outlook for price developments and the risks to price stability in the Euro Area as a whole. The assessment concentrates on the medium impact of the current conditions of inflation. The second pillar is an assessment of the evolution of monetary aggregates (M3) and credit. It analyzes the longer-run impact of monetary aggregates on inflation. The two perspectives offer complementary analytical frameworks to support the Governing Council’s overall assessment of risks to price stability. The inflation forecast is published twice a year. If the forecast exceeds the target (i.e., the 2 percent definition of price stability), the presumption under an inflation targeting strategy is that monetary policy will be tightened. Although the Eurosystem’s strategy resembles inflation targeting, the Eurosystem does not want to give the appearance that it acts mechanically.

In conducting monetary policy, the Eurosystem uses mainly short-term interest rates and focuses on the overnight rate EONIA (European Over-Night Index Average, a weighted average of overnight lending transactions in the Euro Area’s interbank market). Control over EONIA is achieved in two ways. First, the Eurosystem has two facilities at its disposal: a marginal lending facility and a deposit facility. These facilities operate under overnight maturity and are available to counterparties at their own initiative. They are administered on a decentralized basis, with their features harmonized across the Eurosystem. Overnight liquidity is provided at a prespecified interest rate against eligible collateral. In normal circumstances, the interest rate on the marginal lending facility defines the ceiling for EONIA in the market. Similarly, the deposit facility defines the floor for overnight market rates. All financial institutions fulfilling the general eligibility criteria may access this facility. Access is granted through the NCB in the country in which the financial institution is established and on all days that the national payment and securities settlement systems are operational.

The second way in which control is exercised over EONIA is ECB auctions, usually weekly, with a maturity of two weeks at a rate the ECB chooses. These auctions, called refinancing operations, provide the liquidity needed by the banking system, and the chosen interest rate serves as a guide for EONIA. Transactions related to weekly tenders are conducted by the NCBs in the form of standard (fixed-rate or variable-rate) tenders. The NCBs are responsible for collecting the tender offers and transmitting them to the ECB. They also inform credit institutions about the results of the tenders and arrange the settlement aspects—that is, receiving the collateral and providing the liquidity. Both the ECB and the NCBs conduct longer-term refinancing operations monthly, with a maturity of three months. These operations provide the financial sector with additional longer-term liquidity. In addition, the NCBs may carry out structural open-market operations. The Governing Council can authorize fine-tuning, outright transactions of securities, foreign exchange swaps, and the collection of deposits to be conducted, in exceptional circumstances, by the ECB itself.

Although in conducting monetary policy the Eurosystem uses mainly short-term interest rates, it is the long-term interest rate that affects the economy. Indeed, households and firms borrow for relatively long periods. Thus central banks control the short maturity, while it is the long maturity that really matters. Yet these banks do influence the long-term rates by being clear about their longer-run aims and intentions.

Overall, the Eurosystem constitutionally enjoys considerable independence, both in defining its objectives and in deciding how to conduct monetary policy. The ECB is accountable to the European Parliament.

Fiscal Policy The Euro Area does not have a central fiscal authority.¹⁹ There is a budget for the EU as a whole, but it is relatively small. Spending amounts to only a little over 1 percent of GDP, devoted mostly to common agricultural policy and the structural funds, and deficit financing is prohibited. Thus, budgetary decisions in the Euro Area will remain almost exclusively the province of member states, albeit subject to surveillance by the EU as a whole in the context of the requirements set out in the Maastricht Treaty and subsequently the Stability and Growth Pact.

For countries seeking to qualify for EMU membership and those already members, the Maastricht Treaty and the SGP established certain targets on the size of debt and deficits and other obligations. For countries already in the EMU, the targets were intended to achieve and maintain “sound” budgetary positions and to avoid harsh penalties. Article 104 of the Treaty establishes that “member states shall avoid excessive government deficits” and that compliance with budgetary discipline will be judged on the basis of two criteria:

- (a) whether the ratio of the planned or actual government deficit to gross domestic product exceeds a reference value, unless either the ratio has declined substantially and continuously and reached a level that comes close to the reference value, or, alternatively, the excess over the reference value is only exceptional and temporary and the ratio remains close to the reference value
- (b) whether the ratio of government debt to gross domestic product exceeds a reference value, unless the ratio is sufficiently diminishing and approaching the reference value at a satisfactory pace.

As is well known, these two reference values were set at 3 percent and 60 percent, respectively.

The SGP was designed to provide concreteness to several provisions of the Treaty on economic policies in the EU. It consists of a resolution of the European Council and of two regulations (No. 1466/97 and No. 1467/97) of the Council for Economic and Financial Affairs (ECOFIN).²⁰ The resolution reaffirms the commitment to fiscal discipline and introduces the notion that the “medium-term budgetary objective of positions close to balance or in surplus” should be respected by member states in order to “allow all Member States to deal with normal cyclical fluctuations while keeping the government deficit within the reference value of 3 percent of GDP.” The medium term is understood to represent about three years.

Regulation No. 1466/97 clarifies the procedures to be followed in implementing the surveillance of the Stability and Growth Pact, as envisioned in general terms in Article 99 of the Treaty. In particular, it establishes, first, that member states must every year submit an update to the stability program that contains a medium-term objective for the budgetary position, as well as a description of the assump-

tions and of the main economic policy measures the country intends to take to achieve the targets; and, second, that the European Council, on a recommendation from the Commission, must deliver an opinion on each program and its yearly updates and, if deemed necessary, a recommendation. Three types of recommendations are possible. First, the Council could issue a recommendation that the program be adjusted if deemed deficient in some respect. Second, if after approving the program the Council identifies a “significant divergence of the budgetary position from the medium-term budgetary objective, or the adjustment path towards it,” the Commission can issue a recommendation (early warning) in accordance with Article 103(4). Third, if the divergence persists, the Council can issue a recommendation to take corrective action, and can make the recommendation public.

Regulation No. 1467/97 first tries to make more precise the notion of “exceptional and temporary” excess of the deficit over the 3 percent of GDP threshold, as introduced by Article 104 of the Treaty. Article 2(1) of the regulation specifies that an “exceptional and temporary” excess of the deficit is allowed “when resulting from an unusual event outside the control of the Member State concerned and which has a major impact on the financial position of the general government or when resulting from a severe economic downturn.” Articles 2(2) and 2(3) further specify that a deficit will be considered exceptional “if there is an annual fall of real GDP of at least 2 percent” or if a member state can argue successfully that the circumstances are “exceptional,” based on “the abruptness of the downturn or on the accumulated loss of output relative to past trends.” The regulation then clarifies the “excessive deficit procedure” set out in Article 104 of the Treaty, including the imposition of fines.

Countries found exceeding the 3 percent of GDP limit must take corrective action “as quickly as possible after [its] emergence.” The timing of the policy decisions and the rhythm at which the Commission, which monitors the process, prepares its reports imply that a country can run deficits in excess of 3 percent of GDP for two years in a row without incurring sanctions. If a country fails to take corrective action and to bring its deficit below 3 percent of GDP by the deadline set by the

Council, it is sanctioned. The sanction takes the form of a nonremunerated deposit. The deposit starts at 0.2 percent of GDP and rises by 1/10th of the excess deficit, up to a maximum of 0.5 percent of GDP. Deposits are imposed each year until the excessive deficit is corrected. If the excess is not corrected within two years, the deposit is converted into a fine; otherwise, it is returned.²¹

Exchange Rate Policy The exchange rate of the euro in relation to other currencies such as the dollar and the yen is determined by the market, although market misalignments and excessive exchange rate fluctuations are corrected through a combination of economic policy dialogue, the occasional use of interventions, and verbal exchange rate management.

Macroeconomic Policy Framework for Accession Countries

Based on the Treaty, three distinct phases for the adoption of the EMU *acquis* by accession countries can be identified: (1) the preaccession period, (2) the period from accession to the adoption of the euro, and (3) the Euro Area phase, after adopting the euro.²²

Preaccession Phase During the preaccession phase, accession countries carry out the economic reforms and policies needed to fulfill the Copenhagen economic criteria, which are the existence of a market economy and the capacity to cope with competitive pressure and market forces within the EU.²³ In this context, countries have to establish functioning property rights, competition, free price formation, and a well-developed financial sector. If a country is to be able to cope with international competition and if capital is to be channeled smoothly within a country, it is of paramount importance that the domestic banking and financial sector are efficient. Such efficiency requires a high degree of financial intermediation, liquid capital markets, banks with a sufficient capital base, a functioning system of banking and securities supervision, and a sound payments system. In addition, the accession countries must adopt the EMU legislation in order to acquire the status of "Member State with a derogation," which they need to adopt the euro (Article 122). According to

Italianer (2002), the requirements of the legislation are

- Completion of the orderly liberalization of capital movements (Article 56)
- Prohibition of any direct public sector financing by the central bank (Article 101)
- Prohibition of privileged access of the public sector to financial institutions (Article 102)
- Alignment of the national central bank statutes with the Treaty, including the independence of the monetary authorities (Articles 108 and 109).

The first requirement—that capital movements be completely liberalized—underpins the efficient allocation of resources in the internal market.²⁴ The second and third requirements are related to central bank economic independence, which rests on the condition that operating procedures not be restricted by government policies. Traditionally, the greatest threat to central bank economic independence is pressures to monetize the fiscal deficit. As a result of the second and third requirements, the central bank is prohibited from having primary dealings with the fiscal authorities. Essentially, this prohibition means no automatic overdraft facility for treasuries and no central bank purchases of debt directly from the government. The prohibition of privileged access complements the prohibition of central bank financing, imposes market discipline in public sector borrowing, reinforces freedom of capital movements, and gets rid of the distortions in the allocation of financial resources toward the public sector. The two requirements force the market to establish the relevant price, thereby making concessionary finance more difficult, and they make transactions more visible, thereby making the monitoring of central bank performance much easier. The fourth requirement related to central bank independence prepares the national central bank for its future assignment of seeking price stability, and it reinforces fiscal discipline.

Policy coordination in the preaccession phase between the EU and the accession country is achieved through (1) preparation of an annual Pre-accession Economic Programme (PEP) by the accession country, (2) annual evaluation of the PEP by the European Commission, (3) a fiscal notification system, (4) a report on the macroeconomic and financial sector stability developments in candidate countries, (5) macroeconomic forecasts by the

Commission, (6) meetings between the ECB and candidate countries aimed at bringing financial and payment systems in line with those in the Eurosystem, and (7) the Commission's regular reports on progress toward accession.

The PEP concentrates on the economic reforms needed for EU accession, and the PEP procedure offers an opportunity to develop the institutional and analytical capacity necessary to participate in the EMU upon accession, particularly in the areas of economic analysis and medium-term policy planning. The PEP consists of four parts: (1) a review of recent economic developments, (2) a detailed macroeconomic framework, (3) a discussion of public finance issues, and (4) an outline of the structural reform agenda. It places special emphasis on public finance by presenting the medium-term fiscal objectives in terms of the general government deficit, the primary balance, and the public indebtedness. Moreover, the candidate countries specify and explain the factors underpinning their choice of objectives, and the programs undertaken to achieve the objectives should demonstrate the feasibility of the government's fiscal objectives by means of a projection of the main fiscal aggregates. Shortly after submission of the PEP, the Commission evaluates the program. The evaluation does not make an assessment of whether a country has made progress toward meeting the Copenhagen criteria—this is provided on an annual basis by the Commission's regular report on progress toward accession. Yet the accession countries report to the Commission through the fiscal notification system the debt and deficit figures calculated in accordance with the EU methodology based on the ESA 95 system of national accounts. These notifications use the same format as the fiscal notifications provided by member states in the framework of the excessive deficit procedure (see European Commission 2002).

From Accession to Adoption of the Euro Phase

Upon accession, the new member state will have the status of "Member State with a derogation" granted in the accession treaty. It will have to show adherence to the aim of economic and monetary union and compliance with the relevant parts of Title VII of the European Commission Treaty and the other EMU *acquis*. These parts are

- Treatment of exchange rate policy as a matter of common interest and, eventually, participation in the exchange rate mechanism (Article 124)

- Treatment of economic policies as a matter of common concern and coordination of economic policies between the member states through participation in Community procedures (Articles 98 and 99)
- Avoidance of excessive government deficits and adherence to the relevant provisions of the SGP (Article 104)
- Further adaptation of the national central bank's statutes with a view toward integration into the European System of Central Banks (Article 109)
- Progress toward achieving a high degree of sustainable convergence (Article 121).

With accession, the common macroeconomic policy framework becomes more constraining, with a strong reinforcement of fiscal discipline and the integration of other economic policies. Budgetary policy and outcomes become subject to the excessive deficit procedure and the nonpunitive parts of the SGP. The Maastricht Treaty specifies that these countries will have to make progress toward fulfillment of the Maastricht criteria, and, under the conditions of the SGP, they will have to endeavor to avoid excessive deficits. Furthermore, the exchange rate policy becomes a matter of common interest. This development means that, to protect the smooth functioning of the single market, competitive devaluations are not allowed. Thus, new member states must avoid policies leading to excessive fluctuations of the exchange rate. Participation in the ERM II is expected sometime after accession. Such participation implies setting the central rate to the euro and the fluctuation bands within ± 15 percent by mutual agreement.

Because the economic policies of the accession countries become a matter of common concern, these policies will be subject to policy coordination and multilateral surveillance procedures. Shortly after accession, the new member states will be required to submit a full notification of government debt, deficit, and associated data. New member states also will have to prepare convergence programs, which will set out their budgetary strategies for the coming years, in particular with respect to the medium-term objective of reaching a budgetary position "close to balance or surplus." The European Council will examine the programs, and, based on the Commission's recommendation, will adopt an opinion on each of the programs.

In addition to the convergence programs, economic and fiscal policy coordination and

surveillance in the EU are achieved through the Broad Economic Policy Guidelines (BEPG). These guidelines, which are prepared on an annual basis, present the member states' consensus opinion on macroeconomic and other structural economic policies in the medium term. Each year, the European Commission reviews in its annual economic report the implementation of the guidelines by the member states.²⁵

Participation in the Euro Area will be the ultimate goal for each new member state. A favorable decision is made when the conditions for adoption of the single currency are met, after determining whether a new member state has achieved a high degree of sustainable convergence. Prior to accession, there is no requirement that the EU assess progress made on convergence criteria, or that candidates for accession meet the criteria. As it was for the present member states, adoption of the euro occurs when a high degree of sustainable convergence has been demonstrated within the internal market.

Euro Area Phase The adoption of the euro will add two key elements to the macroeconomic framework of "Member States with a derogation." One is the single stability-oriented monetary policy and the ensuing single exchange rate policy. The second is implementation of the sanction provisions of the SGP, by which member states surpassing the 3 percent ceiling in their deficit will be subjected to substantial fines. The aim is to allow the ECB to conduct an independent monetary policy supported by prudent national fiscal policies, which are subjected to the SGP and policy coordination. The Treaty does not specify any mandatory timetable for fulfillment of the conditions for introduction of the euro. In other words, although the economic policies of the new member states will have to pursue a high degree of sustainable convergence, the speed at which this should happen is left undetermined by EU legislation.

Prospects for Central and Eastern European Countries The Central and Eastern European countries that acceded to the EU on May 1, 2004, will have to coordinate their economic and fiscal policies with the Community in the ECOFIN Council. They must submit annual convergence programs, and restrictions on capital movements

will no longer be permitted. The EU expects each of the acceding countries to join the ERM II—that is, to agree to an exchange rate arrangement between the euro and each country's currency. This phase will last at least two years. The test period for the exchange rate criterion will probably be from May 1, 2004, to April 30, 2006. It is crucial that a country avoid devaluation within the two-year test period, because that country would fail the exchange rate criterion.

During the second half of 2006, the convergence test will probably be conducted by the ECB and the European Commission. The decision on acceptance into the EMU will be made by ECOFIN on the basis of a proposal of the European Commission and after consultation with the European Parliament and after a discussion in the European Council. The examination of the budget and of government debt will likely be based on the data for 2005 or the latest available figures. In January 1, 2007, the euro will probably be adopted as national currency. The central bank governor of each new EMU country then becomes a member of the Governing Council, the main decision-making body of the ECB.²⁶

The Macroeconomic Challenges Facing Turkey

Turkey realizes that, in the long run, price stability and fiscal discipline create the best conditions for sustained, robust economic growth, but currently the situation is problematic. The data in table 1.9 show the EMU convergence criteria for Turkey and the Central and Eastern European countries. The table reveals that the CEE countries are about to satisfy the criteria, but that Turkey is far from satisfying the conditions. In 2003 the inflation rate in Turkey was 25.3 percent, compared with a reference value of 2.7 percent for the EU; the budget deficit as a percentage of GDP was 8.8 percent, compared with a reference value of 3 percent for the EU; the debt-to-GDP ratio was 80.2 percent, compared with a reference value of 60 percent for the EU; and interest rates were 28.5 percent, compared with a reference value of 6.2 percent for the EU.²⁷

The challenge facing Turkey is how to move from the current state of affairs to one in which the Maastricht criteria will be satisfied. The main issues are reducing the inflation rate to about 3 percent over time and reducing the debt-to-GDP ratio to 60 percent over time, while attaining sustainability

TABLE 1.9 European Economic and Monetary Union Convergence Criteria, 2000–03

	Inflation Rate (%)				Budget Deficit (% of GDP)				Government Debt (% of GDP)				Interest Rates, 10Y Bonds (last)	Exchange Rate against Parity (max, 2Y)	Currency Regime
	2000	2001	2002	2003	2000	2001	2002	2003	2000	2001	2002	2003			
Czech Rep.	3.9	4.7	1.8	0.1	-4.0	-3.2	-4.6	-6.6	29.2	29.0	22.4	37.6	5.1	-5.0	Managed float (EUR)
Estonia	4.0	5.8	3.6	1.3	-0.7	1.1	1.2	2.4	6.6	6.2	5.4	5.1	2.3	-0.4	Currency board (EUR)
Hungary	9.8	9.2	5.3	4.7	-3.5	-5.0	-9.6	-5.7	56.1	51.5	50.4	58.6	8.4	-9.3	Target zone (EUR)
Latvia	2.7	2.5	1.8	2.9	-2.8	-1.9	-2.7	-1.6	10.0	12.2	13.9	16.3	7.4	-9.9	Peg (SDR)
Lithuania	1.0	1.3	0.3	-1.2	-2.8	-1.4	-2.8	-1.7	28.3	29.0	25.0	23.6	6.4	0.2	Currency board (EUR)
Poland	10.1	5.5	1.9	0.7	-2.7	-6.3	-5.4	-4.5	43.8	38.0	48.0	51.0	7.3	-17.2	Float
Slovakia	12.0	7.3	3.3	8.5	-6.8	-7.2	-1.9	-3.6	32.9	42.7	32.0	42.8	5.1	-6.3	Managed float (EUR)
Slovenia	8.9	8.5	7.5	5.6	-1.4	-1.3	-1.1	-1.4	25.1	25.4	32.2	26.8	4.0	-4.3	Managed float (EUR)
Bulgaria	10.1	7.9	5.8	2.3	-1.1	-1.0	0.2	0.0	83.8	72.5	60.9	53.7	5.4	-0.8	Currency board (EUR)
Romania	45.7	34.5	22.5	15.3	-4.1	-3.7	-1.7	-2.3	29.2	31.2	25.7	26.2	17.3	-19.2	Managed float (US\$)
Turkey	54.9	54.4	45.0	25.3	-6.1	-29.8	-12.6	-8.8	65.4	102.6	89.5	80.2	28.5	16.3	Float
Reference value	2.8	3.3	3.0	2.7	-3.0	-3.0	-3.0	-3.0	60.0	60.0	60.0	60.0	6.2	+/- 15%	

Note: Parity refers to the last three-year average exchange rate against the euro. In the case of Turkey, the interest rate is the annual compound interest rate obtained in the auction of treasury bills and government bonds during November 2004. SDR = special drawing rights.

Sources: Deutsche Bank Research, EU Enlargement Monitor, April 2002, and EU Monitor, September 2004; State Planning Organization 2004; Central Bank of Turkey (<http://www.tcmb.gov.tr>).

of the current account and decreasing the unemployment rate in the economy.

Inflation

As of November 2004, the annual inflation rate in Turkey was 9.8 percent, and the government was aiming to reduce the inflation rate to 8 percent in 2005. To satisfy the Maastricht criteria on inflation, Turkey must reduce the inflation rate further, to 3 percent. The annual inflation rate in Turkey has been reduced in recent years through strict implementation of the IMF economic program, which calls for controlling the growth of base money. Another factor leading to a lower inflation rate has been the decrease in the cost of imported goods, achieved as a result of real appreciation of the Turkish lira. But reducing the inflation rate over time through real appreciation of the currency is not sustainable in the long run, because the real appreciation of the currency will lead to problems of sustainability of the current account. Current account sustainability in Turkey as of December 2004 requires that the real exchange rate be depreciated to its long-run equilibrium level.²⁸ Yet reducing the inflation rate by reducing the public sector component of the wholesale price level, p_{public} , is also not sustainable, because this policy will lead to increases in the ratio of the public sector borrowing requirement to GDP, leading, in turn, to problems related to the sustainability of fiscal policy. Thus p_{public} should be increased at least at the same rate as the inflation rate in the economy. The only policy option for reducing the rate of inflation is therefore to control the growth rate of base money.

To reduce the inflation rate from its current level of 9.8 percent to around 3 percent, Turkey will probably go through a disinflation period. But disinflation in general entails costs, and the most

commonly used measure of the costs of disinflation is the "sacrifice ratio," which can be defined as the number of percentage points of lost output associated with a policy-induced 1 percent reduction in inflation. Following Ball (1994), we identify disinflation episodes as the time range within which trend inflation falls substantially and define trend inflation as a centered five-quarter moving average of the actual inflation rate.²⁹ During the time period between the first quarter of 1987 and the third quarter of 2003, we identify in Turkey two disinflation episodes. The first episode starts at the fourth quarter of 1994 and ends during the fourth quarter of 1996. The second episode starts at the first quarter of 1998 and ends during the first quarter of 2001. The trend inflation rate decreases by 29.62 percent during the first episode and by 43.05 percent during the second episode. We assume that output is at its potential level at the start of the disinflation episode. For potential output and output gap projections, we consider the estimates provided by the Turkish State Planning Organization (SPO).³⁰ They have estimated the potential output using the linear method, the Hodrick-Prescott method, and the production function method (see State Planning Organization 2003). The sacrifice ratio is then calculated by the formula

$$(1.3) \quad SR = \left[\sum_{t=S}^{Z+4} (y_t - y_t^*) \right] / (\pi_t - \pi_{t-1})$$

where y_t stands for the natural logarithm of real output, y_t^* for the natural logarithm of potential output, π_{t-1} for the trend inflation rate at the beginning of the episode, π_t for the trend inflation rate at the end of the episode, and the disinflation episode starts at period S and ends at period Z . The calculations are presented in table 1.10. In the table,

TABLE 1.10 Estimates of the Sacrifice Ratio

Episode	HP Filter	Production Function	Linear Method
April 1994–April 1997	0.000	0.000	–0.013
April 1994–April 1996	0.005	0.006	–0.003
January 1998–January 2002	–0.001	–0.001	–0.001
January 1998–January 2001	0.005	0.005	0.007

Source: The authors.

the first line of each episode denotes the estimate of the sacrifice ratio obtained under the assumption that output returns to its potential level four quarters after the end of an episode, as in Ball (1994). By contrast, the second line of each episode denotes the estimate of the sacrifice ratio obtained under the assumption that output returns to its potential level right at the end of the episode.

The table reveals that the estimates of the sacrifice ratio in Turkey are not very much different from zero,³¹ which indicates, in turn, that disinflation in Turkey will entail relatively little output cost. The result probably stems from the extreme flexibility of the Turkish labor market.³² But the output costs of disinflation will increase as the Turkish labor market becomes less flexible.³³ Thus it would be advisable for Turkey to follow the disinflationary policies as long as the labor market is flexible.

Public Debt and Fiscal Policy

To analyze the issues associated with reducing the debt-to-GDP ratio from 80.2 percent in 2003 to 60 percent over time, we consider the government budget constraint represented by

$$(1.4) \quad G_t - T_t + i_t B_{t-1} + i^* E_t B_{t-1}^* + FSB_t \\ = (B_t - B_{t-1}) + E_t (B_t^* - B_{t-1}^*) \\ + M_t - M_{t-1} + PRIV_t$$

where G refers to government expenditures excluding the interest payments, T government revenues, B the TL-denominated debt stock of the public sector, B^* the FX-denominated debt stock of the public sector, i the nominal interest rate on the TL-denominated government debt, i^* the interest rate on the FX-denominated government debt, E the exchange rate, FSB the public expenditure for the financial sector bailout, M the monetary base, and $PRIV$ privatization revenues. Let $Y_t = p_t y_t$ be the nominal GDP, p the GDP deflator, and y real GDP. Denoting the primary-surplus-to-GDP ratio by $ps_t = (T_t - G_t)/Y_t$, the TL-denominated debt-to-GDP ratio by $b_t = (B_t/Y_t)$, the FX-denominated-debt-to-GDP ratio by $b_t^* = (E_t B_t^*)/Y_t$, the privatization-revenues-to-GDP ratio by $priv_t = (PRIV_t/Y_t)$, the financial-sector-bailout-to-GDP ratio by $fsb_t = (FSB_t/Y_t)$, the domestic rate of inflation by π , the foreign rate of inflation by π^* , the growth rate of real GDP by g ,

the real rate of interest by r , the foreign real interest rate by r^* , the real exchange rate by q , the rate of depreciation of the real exchange rate by η , and the velocity of money by V , we get the equation determining the time path of the total-debt-to-GDP ratio $d_t = b_t + b_t^*$:

$$(1.5) \quad d_t = -ps_t + \frac{(1+r)}{(1+g)} b_{t-1} \\ + \frac{(1+r^*)(1+\eta)}{(1+g)} b_{t-1}^* \\ - \frac{1}{V} \left[\frac{g+\pi+\pi g}{(1+\pi)(1+g)} \right] \\ - priv_t + fsb_t$$

The equation shows that debt-to-GDP ratio decreases with increases in the primary-surplus-to-GDP ratio ps , the growth rate of real GDP g , the privatization-revenues-to-GDP ratio $priv$, and the seigniorage-revenues-to-GDP ratio, defined as $\frac{1}{V} \left[\frac{g+\pi+\pi g}{(1+\pi)(1+g)} \right]$. By contrast, the debt-to-GDP ratio increases with increases in the real domestic interest rate r , the real foreign interest rate r^* , the rate of depreciation of the real exchange rate η , and the financial-sector-bailout-to-GDP ratio fsb .

Over 2000–03, seigniorage and privatization revenues were running at about 1.3 and 1.7 percent of GDP, respectively. The crucial parameters determining the time path of the debt-to-GDP ratio turn out to be the primary-surplus-to-GDP ratio, the domestic and foreign real rates of interest, and the rate of real exchange rate depreciation. Turkey is committed to the primary surplus target of 6.5 percent of GNP over the next few years. In 2004 the domestic real interest rate was running at about 12 percent and the foreign real interest rate at about 8 percent (see OECD 2002 and IMF 2004). Finally, it is noteworthy that Turkey, after appreciating the real exchange rate by 13 percent in 2002, appreciated the real exchange rate by a further 23.8 percent in 2003. All these factors have contributed to reducing the debt-to-GDP ratio. But even under these favorable circumstances, it will take quite a long time to reduce the debt-to-GDP ratio from its level of 80.2 percent in 2003 to 60 percent and below. Here three issues deserve careful analysis.

First, the real appreciation of the exchange rate contributed substantially to the reduction in the

debt-to-GDP ratio during 2002 and 2003. But this policy is not sustainable in the long run, because the real appreciation of the currency will lead to problems of sustainability in the current account, as explained later in this chapter in some detail.

Second, EU accession will entail costs for Turkey that must be identified and financed. These costs will include the social consequences of economic restructuring, such as those in the agriculture sector, where restructuring presents particular problems for small farmers. The process of adopting the *acquis communautaire* entails, among other things, comprehensive structural reforms of the public administration and the productive sectors, as well as extensive investment in human resources and the environment. From a budgetary perspective, the fiscal costs of EU accession in the other accession countries have been estimated to be over 3 percent of GNP annually. Turkey would also face significant fiscal costs—costs that would have to be financed in the context of continuing fiscal adjustment.³⁴ This situation implies either a reduction in the primary-surplus-to-GDP ratio by the same amount or further increases in the revenues of the public sector.

Third, to reduce the debt-to-GDP ratio from its level of 80.2 percent in 2003 to 60 percent over time, Turkey, even in the face of the higher costs of EU accession, must stick to the primary surplus target of at least 6.5 percent of GNP over the next few years. Any downward deviation from the target will postpone achievement of the 60 percent debt-to-GDP ratio. Achievement of the primary surplus target of at least 6.5 percent of GNP over time requires that Turkey increase its tax revenue by broadening its tax base. In this context, Turkey could introduce, like Russia and Ukraine, a flat tax on income at a relatively low rate. The introduction of such a flat tax at a low rate would improve tax compliance and efficiency,³⁵ and it would increase the tax base and thus the tax revenue, as long as the necessary steps are taken simultaneously to modernize the tax administration and improve tax compliance.³⁶ Such measures also will help to decrease the share of the informal sector in the economy.

Finally, the government's desire to achieve a primary surplus target of at least 6.5 percent of GNP over the next few years will constrain its use of fiscal policy for decreasing the unemployment rate in

the economy, which was 9.5 percent during the third quarter of 2004. That constraint may have serious political implications, unless the country tries to broaden its tax base, reduce the tax burden of economic units in the formal sector, and improve tax compliance in the country.

Sustainability of Current Account

The basic presumption of our approach is that the current account is sustainable. If not, Turkey could face an exchange rate collapse or an external debt default, which, in turn, would imply a reduction in real income and employment, deviating from the long-run growth path. Starting from the notion that under current account sustainability the country must satisfy its lifetime budget constraint, we contend that the current policies are sustainable if continuation of the current government policy stance and private sector behavior into the future does not entail a drastic policy shift or lead to a currency or balance of payments crisis.

Here we emphasize the points stressed earlier by considering the balance of payments relation, which can be written as

$$(1.6) \quad TB_t^S - i^* D_{t-1} + FDI_t + D_t - D_{t-1} - \Delta R_t = 0$$

where TB^S denotes the noninterest current account (NICA), i^* the foreign rate of interest, D the stock of foreign debt, FDI the net foreign direct investment, R the foreign exchange reserves of the country, and ΔR_t the change in reserves. Also, $(TB_t^S - i^* D_{t-1}) = \text{Current Account}_t$, and $(FDI_t + D_t - D_{t-1}) = \text{Capital Account}_t$. All variables are measured in terms of foreign currency. If $d_t = \frac{E_t D_t}{P_t Y_t}$ is the foreign-debt-to-GDP ratio, $tb_t = \frac{E_t TB_t^S}{P_t Y_t}$ the noninterest-current-account-to-GDP ratio, $fdi_t = \frac{FDI_t E_t}{P_t Y_t}$ the FDI-to-GDP ratio, and $\Delta r_t = \frac{(\Delta R_t) E_t}{P_t Y_t}$ the change-in-reserves-to-GDP ratio, the equation determining the time path of d_t can be written as

$$(1.7) \quad d_t = -tb_t + \frac{(1+r^*)(1+\eta)}{1+g} d_{t-1} - fdi_t + \Delta r_t$$

where r^* denotes the foreign real rate of interest and η the rate of depreciation of the RER. The equation reveals that the external-debt-to-GDP ratio decreases with increases in the noninterest-current-account-to-GDP ratio tb , the FDI-to-GDP

ratio fdi , and the growth rate of GDP g . By contrast, the debt-to-GDP ratio increases with increases in the foreign real interest rate r^* , rate of depreciation of the RER η , and changes in the reserves-to-GDP ratio Δr .

Following the approach of von Hagen and Harden (1994), we solve this expression forward for n periods and obtain

$$(1.8) \quad d_t = \Gamma_t \delta_{t,n} d_{t+n} + \Gamma_t \sum_{i=1}^n \delta_{t,i} A_{t+i}$$

where

$$\delta_{t,k} = \prod_{i=1}^k \frac{1 + g_i}{(1 + r_i^*)(1 + \eta_i)}$$

and

$$A_t = tb_t + fdi_t - \Delta r_t.$$

Here, $\delta_{t,k}$ can be interpreted as the “k-periods ahead” discount factor used to calculate the present value of assets and liabilities in period $t + k$ for period t . $\Gamma_t x_{t+k}$ denotes the period t expectation of the variable x in period $t + k$. The equation shows that current-debt-to-GDP ratio equals the expected discounted present value of foreign debt outstanding in period $t + n$ relative to GDP, plus the sum of all discounted A_t 's between period t and period $t + n$. Theoretically, the intertemporal budget constraint requires that $\lim_{n \rightarrow \infty} \Gamma_t \delta_{t,n} d_{t+n} \leq 0$ as n becomes very large, so that foreign debt remains bounded relative to GDP. If the intertemporal budget constraint were violated, private investors would realize that the government's liabilities would eventually exceed its revenue-raising capabilities. As a result, the price of the debt of the country would fall to zero, and the country would see itself barred from international capital markets.

To translate the intertemporal budget constraint into a practically more relevant requirement, we consider the above relation for a limited period of time n^* and add the condition that the discounted-debt-to-GDP ratio at the end of period $t + n^*$ should not exceed the debt-to-GDP ratio at time t . We use actual data on d_t , tb_t , and fdi_t for any year during the time period 1984–2003. For each year t of the time period, we estimate the expected discounted present value at time t of foreign debt outstanding in period $t + n^*$ relative to GDP, plus the sum of all discounted A_t 's between period t and period $t + n^*$. As for the government policy stance and the private sector behavior over the period t to

$t + n^*$, we assume that the values of tb_{t+i} and fdi_{t+i} for $i = 1, \dots, n^*$ will remain unchanged at their initial values of tb_t and fdi_t . Thus we assume that the government, private sector, and rest of the world will not change the policies they pursue in period t over the time period $t + 1$ and $t + n^*$.

A look at Turkey's annual GDP growth rate over the period 1980–2003 reveals that the average growth rate of GDP amounted to 4.1 percent during 1980–1989 and to 3.7 percent during 1990–2003. Thus for the growth rate of GDP over the time period t to $t + n^*$ we take the figure of 4 percent. By contrast, the foreign real interest rate is to equal 8 percent. Finally, we assume in the following calculations that $\Delta r = 0$ for each year of the period t to $t + n^*$ and that over the same period η equals zero.

Following the approach of von Hagen and Harden (1994), the current account is not sustainable if

$$(1.9) \quad \begin{aligned} S(n^*) &= d_t - \Gamma_t \delta_{t,n} d_{t+n} \\ &= \Gamma_t \sum_{i=1}^n \delta_{t,i} A_{t+i} < 0. \end{aligned}$$

This is a rather mild sustainability condition. Here d_t denotes the actual debt-to-GDP ratio in period t , and $A_{t+i} = (tb_t + fdi_t)$ for $i = 1, \dots, n^*$. The result of the calculations for $n^* = 10$, $n^* = 20$, and $n^* = 25$ are shown in table 1.11.

The table reveals that during 1993 the current account was unsustainable in the sense that the actual debt-to-GDP ratio in 1993 fell short of the expected discounted present value of foreign debt outstanding in period 2003 relative to GDP by 14.03 percent when $n^* = 10$ and that the actual debt-to-GDP ratio in 1993 fell short of the expected discounted present value of foreign debt outstanding in period 2018 relative to GDP by 27.26 percent when $n^* = 25$. This finding indicates that the current account needed adjustment in the NICA-to-GDP and FDI-to-GDP ratios. During 1994, Turkey increased the NICA-to-GDP ratio considerably, but there was not much change in the FDI-to-GDP ratio. The table indicates that the policy was successful; the sustainability measure was positive thereafter. The warning signals for the 2001 currency crisis were evident in the negative figures of the sustainability measure for the year 2000. The situation improved after the crisis, when the sustainability measure increased and became positive at the end of 2001. Although the current account was sustainable in 2001 and 2002, the system was not sustainable again in 2003.

TABLE 1.11 Current Account Sustainability Measures, 1984–2003
(values of $S(n^*)$, percent)

	10 Years	20 Years	25 Years
1984	1.55	2.61	3.00
1985	6.53	11.01	12.69
1986	4.85	8.18	9.43
1987	12.30	20.73	23.89
1988	39.31	66.27	76.38
1989	29.16	49.15	56.65
1990	2.20	3.71	4.28
1991	19.12	32.23	37.15
1992	11.54	19.46	22.43
1993	-14.03	-23.65	-27.26
1994	36.46	61.45	70.83
1995	3.00	5.06	5.83
1996	1.74	2.93	3.38
1997	3.06	5.16	5.95
1998	21.57	36.37	41.91
1999	9.89	16.67	19.21
2000	-25.41	-42.83	-49.36
2001	58.32	98.31	113.31
2002	12.70	21.40	24.67
2003	-8.79	-14.81	-17.07

Source: The authors.

A look at the sustainability measure for 2003 with $n^* = 25$ reveals that the actual-debt-to-GDP ratio in 2003 fell short of the expected discounted present value of foreign debt outstanding in the period 2028 by 17.07 percent. The system is not sustainable. The sustainability of the current account requires that the value of the sustainability measure be increased so that it becomes positive. This goal can be achieved either through an increase in the NICA-to-GDP ratio tb_t or through an increase in the FDI-to-GDP ratio fdi_t during each year of the period 2004–28 or through a combination of increases in both the NICA-to-GDP and FDI-to-GDP ratios during the same time period. During 2003, the actual value of $A_t = (tb_t + fdi_t)$ was -1.08 percent. For Turkey to achieve the minimal condition for external sustainability, the value of A_t during each time period of the interval 2004–29 would have to be 0 percent. Thus Turkey has to increase the sum of its noninterest-current-account-to-GDP ratio and its FDI-to-GDP ratio during each period of the interval 2004–29 by at least 1.08 percent. Supposing that fdi_t during the time period 2004–28 remains constant at its 2003

level of 0.03 percent, we next turn to the study of the determinants of noninterest-current-account-to-GDP ratio.³⁷

Using quarterly data from 1988 (first quarter) to 2003 (second quarter) we note that one of the main determinants of this ratio is the RER. A second factor that strongly affects the NICA-to-GDP ratio is the aggregate demand for domestic goods and services, consisting of total consumption plus investment demand in the home country as well as the rest of the world. As the aggregate domestic demand for goods and services in the home country increases, it triggers imports, and, other things being equal, the NICA-to-GDP ratio is expected to decline. Similarly, as aggregate domestic demand for goods and services increases in the rest of the world, it triggers imports of the foreign country, and, other things being equal, the NICA-to-GDP ratio in the home country is expected to increase.

To explain the developments in the NICA, the following equation is estimated:

$$\begin{aligned}
 (1.10) \quad (NICA/GDP) &= \beta_0 + \beta_1 d \log(ADD) \\
 &+ \beta_2 d \log(ADDF) + \beta_3 RER + \beta_4 DQ3 \\
 &+ \beta_5 D1999 + \beta_6 D93ST + \beta_7 D2000
 \end{aligned}$$

where $d \log(ADD)$ denotes the annual growth rate of real aggregate domestic demand in the home country; $d \log(ADDF)$ the annual growth rate of real aggregate domestic demand in the rest of the world; $DQ3$ the third-quarter seasonal dummy; $D1999$ the recession and earthquake dummy for the year 1999, taking the value of 1 for the second, third, and fourth quarters of 1999 and 0 otherwise; $D93ST$ the structural break dummy in 1993, taking the value of 1 after 1993 and 0 otherwise; and $D2000$ the exchange rate-based stabilization measures, taking the value of 1 for all quarters of 2000 and 0 otherwise. The $D93ST$ dummy refers to the structural break in Turkey's balance of payments that took place after the liberalization of the capital account in 1990. Because economic agents respond with lag to such decisions, a series of tests were conducted to identify the structural break resulting from this decision. All of the variables used in the estimation were checked for unit roots, and it was learned that the series are all stationary. Because of the simultaneity problems faced in the model, we use instrumental variable techniques to estimate the parameters.³⁸ The results of the estimation are presented in table 1.12.

TABLE 1.12 Results for Quarterly Instrumental Variable Regression of Ratio of Noninterest Current Account (NICA) to GDP

Variable	Coefficient	t-Statistic
C	-2.56863	-1.41186
d log (aggregate domestic demand, home country)	-29.89038	-12.12362
d log (aggregate domestic demand, foreign country)	38.84045	1.95129
Real exchange rate	0.03719	1.97118
DQ3	1.84541	4.52182
D1999	-3.82977	-4.34096
D93ST	-0.91545	-2.34142
D2000	-2.72463	-3.18816
R-squared	0.82106	
Adjusted R-squared	0.79787	
Durbin-Watson statistic	2.14602	

Source: The authors.

The coefficients of the variables are all statistically significant, and all have the expected signs. An increase in the growth rate of aggregate domestic demand in the home country reduces the NICA-to-GDP ratio; an increase in the growth rate of aggregate domestic demand in the rest of the world increases that ratio. The ratio increases as the RER depreciates. The coefficient of the structural change dummy is negative, which indicates that liberalization of the capital account had a negative impact on the NICA-to-GDP ratio, as expected.

The above considerations reveal that the NICA-to-GDP ratio can be increased by decreasing aggregate demand for domestic goods and services and/or by depreciating the RER. Decreasing the aggregate demand for goods and services requires that the country aims for a more ambitious fiscal objective than the constant primary surplus of 6.5 percent of GDP. But this will be very painful after so many failed stabilization attempts. The alternative is to depreciate the RER and keep the RER at its “long-run equilibrium level” over time.³⁹

To determine the extent of depreciation in the RER, we consider the regression equation reported in table 1-12. But, this equation yields rather high levels of required rates of depreciation of the RER for alternative specifications of the sustainability condition. We therefore consider a different approach in order to determine the extent of the required rate of depreciation of the RER for achieving current account sustainability. We consider the elasticity of the ratio of noninterest-current account-to-GDP with respect to

the RER, $\theta = \left(\frac{d \text{NICA/GDP}}{d \text{RER}} \frac{\text{RER}}{\text{NICA/GDP}} \right)$. Then starting from initial trade balance we derive that

$$\theta = (\eta_{im} + \eta_{exp} - 1),$$

where η_{im} and η_{exp} denote the import and export elasticities with respect to the RER. Estimates based on estimated Turkish import and export functions range quite widely. Here we consider the estimates of Tansel and Togan (1987) who determine the export price elasticity as 0.933 and import price elasticity as 0.472. Thus, $\theta = 0.405$. Considering the ratio of exports to GDP of 19.6 percent, the parameter values imply that a reduction of the ratio of noninterest-current account-to-GDP of 1 percent requires a depreciation of the RER by 12.6 percent. Thus sustainability of the current account following the approach of von Hagen and Harden (1994) requires that the RER at the end of 2003 be depreciated by 13.6 percent.

An alternative specification of the sustainability condition requires that the ratio of the stock of foreign liabilities to GDP stay constant over time at its initial value in time period 2003. In that case, the equation determining the time path of the debt-to-GDP ratio d can be solved for the equilibrium value of the sum of tb and fdi , under the assumption that $\Delta r = 0$, as

$$(1.11) \quad (tb + fdi) = - \left[\frac{(g - r^* - \eta - r^*\eta)}{(1 + g)} \right] d$$

Assuming that η equals 0 and setting the values of $g = 0.04$, $r^* = 0.08$, and $d = 0.612$ of the year

2003, the equilibrium value of $(tb + fdi)$ is determined to be 2.354 percent. Because in 2003 the actual value of $(tb_t + fdi_t)$ equaled -1.08 percent, Turkey must increase the sum of its noninterest-current-account-to-GDP and FDI-to-GDP ratios over time by 3.4 percent. Suppose again that fdi_t over time stays constant at its 2003 level of 0.03 percent. Then the increase in tb_t , and thus in A_t over time, can be achieved by depreciating the RER by about 42.8 percent and maintaining it at about that level over time.

Finally, following the suggestion of Reinhart, Rogoff, and Savastano (2003), we consider cases in which the country tries to decrease its ratio of stock of foreign liabilities to GDP from its initial value of 0.612 to 0.5 and 0.4 over a period of 10 years. In those cases, Turkey has to increase the sum of its noninterest-current-account-to-GDP ratio and its FDI-to-GDP ratio over time by 4.3 and 5.2 percent, respectively. This change, under the assumption that fdi_t over time stays constant at its 2003 level, requires that the RER be depreciated by 54.2 percent and 65.5 percent, respectively.

Consider now the issue of increasing the FDI-to-GDP ratio. A striking feature of foreign direct investment flows to Turkey is that the level is too low compared with that of FDI flows to developing countries with similar levels of GDP per capita. In particular, the FDI flows to Central and Eastern European countries are much larger than those to Turkey. However, in terms of population, Turkey's is larger than that of Poland, the Czech Republic, and Hungary combined. In terms of GDP, Turkey's economy is four times larger than that of the Czech Republic or Hungary, and one-quarter larger than that of Poland in 2000. In terms of gross fixed capital formation, Turkey's investments during 2000 were three to four times larger than those of the Czech Republic and Hungary and roughly a sixth larger than those of Poland. In terms of average annual inflows of FDI during the 1990s, Turkey attracted inflows valued at US\$800 million, which is roughly one-fifth of the US\$4.1 billion in FDI inflows to Poland and significantly lower than the inflows to the Czech Republic and Hungary, each of which attracted about US\$2.1 billion per year.

An explanation of the factors determining the FDI flows must begin with a definition of the investment climate in the country. It is the policy, institutional, and behavioral environment, present

and expected, that influences the perceived returns and risks associated with investment in terms of both quantity and productivity of investment flows. Investment climate thus defined depends on a wide array of factors that can be grouped under the headings of (1) macroeconomic and trade policies, (2) infrastructure, and (3) governance and institutions.

Although Turkey had an open trade regime over the past two decades, it was unable to attract large FDI inflows. One of the main culprits behind this failure was the uncertain macroeconomic environment, which, along with the uncertainties stemming from domestic politics and the ensuing high real interest rates, produced a very erratic growth performance. Throughout the past two decades, Turkey put on hold many decisions that could help foreign investors cope with high inflation. One of the critical measures that Turkey did not introduce was the inflation accounting framework in the context of the highly inflationary environment. Infrastructure-related factors were at play as well. Although the quantity and quality of Turkey's broadly defined infrastructure—including its geographic and demographic endowments and its physical and financial infrastructure—help to position Turkey as a potentially powerful magnet for FDI inflows, these factors were ineffective in Turkey's effort to increase those flows. The main bottlenecks, as emphasized by Dutz, Us, and Yılmaz in chapter 10 of this volume, seem to have been insufficient respect for the rule of law and weak competition in local markets, reinforced by an uneven application of bureaucratic red tape. To attract higher levels of FDI flows in the future, Turkey must therefore not only improve its macroeconomic environment, but also increase respect for the rule of law, increase competition in local markets, and reduce the bureaucratic red tape.

Once Turkey is able to attract higher levels of FDI into the country, it does not need to depreciate its RER by as much as before in order to attain sustainability in its current account. With increases in the FDI-to-GDP ratios, the calculated required rates of depreciation of the RER decreases. When the net FDI-to-GDP ratio increases by 1.08 percent to 1.11 percent of GDP while the non-interest-current-account-to-GDP ratio stays constant at its 2003 value of -1.11 percent, then the system becomes sustainable under the approach of von

Hagen and Harden (1994) with no change in the RER. For increases in net FDI-to-GDP ratio below 1.08 percent, the required rate of depreciation of the RER will be positive but less than 13.6 percent. In the second case when sustainability requires that debt-to-GDP ratio stays constant over time the system becomes sustainable with no change in RER when the net FDI-to-GDP ratio increases by 3.4 percent while the non-interest-current-account-to-GDP ratio stays again at its 2003 value of -1.11 percent. In this case for increases in net FDI-to-GDP ratio below 3.4 percent, the required rate of depreciation of the RER will again be positive but less than 42.8 percent. Finally, under the third approach when sustainability requires that debt-to-GDP ratio decreases over a period of 10 years from its initial value of 0.612 to 0.4, the system becomes sustainable with no change in RER when the net FDI-to-GDP ratio increases by 5.2 percent while the non-interest-current-account-to-GDP ratio stays at its 2003 value of -1.11 percent. For increases in net FDI-to-GDP ratio below 5.2 percent, the required rate of depreciation of the RER again be positive but less than 65.5 percent.

Employment and Growth

As emphasized earlier in this chapter, the unemployment rate in 2003 was high in Turkey. The employment challenge facing the country is to create jobs for those unemployed, to create new jobs for those entering the labor force for the first time at an average rate of 900 thousand persons per year, and to increase the labor force participation rate from its low level of 48.3 percent.

To solve the unemployment problem over time, Turkey has to preserve the flexibility of the labor market and achieve a relatively high but sustainable growth rate of GDP over the next decades. Turkey can no longer sustain the flexibility of the labor market through the lax enforcement of laws on taxation and social security, because such enforcement tends to create different problems for Turkish society.⁴⁰ Instead, the country has to attack the root of the problem, which is the large wedge between labor costs and workers' disposable income because of the high labor taxes. Such a high tax wedge raises labor costs, discourages work in the formal economy, and contributes to high nonemployment in the working-age population. The challenge facing Turkey is to reduce the high labor taxes without

increasing the fiscal deficits. The country has to introduce tax reforms that will aim to lower the personal income and social security taxes, while broadening the tax base through, for example, the introduction of a relatively low flat tax and simultaneously modernizing the tax administration.

Achieving a relatively high but sustainable growth rate of GDP is also a challenge for Turkey. According to a recent study by Togan (2003), the problem can be analyzed in terms of the growth of productivity and the growth of employment.⁴¹ Noting that Turkey achieved annual productivity growth of 3.12 percent over the period 1950–99, Togan emphasizes that the percentage contribution of the three sources of growth to productivity growth were (1) 38.1 percent from growth in the amount of capital per worker in the economy (capital deepening), (2) 25.15 percent from improvements in labor quality, and (3) 36.75 percent from total factor productivity (TFP) growth.⁴² Thus if Turkey wants to achieve higher growth rates of GDP than the 3.6 percent a year achieved over the period 1990–2002, it has to increase, on the one hand, the productivity growth rate—through capital deepening, improvements in labor quality, and increases in the growth rate of the TFP—and, on the other hand, the growth rate of employment.⁴³

Togan (2003) points out that Turkey, to increase the amount of capital per worker, has to increase not only its investment ratio but also its domestic savings rate, because too much reliance on foreign savings over considerably long periods of time may lead to problems of solvency and sustainability of the current account. In addition, Turkey has to increase its investment in human capital formation. It must increase not only the proportion of the adult population with primary, secondary, and higher education, but also the quality of education at each of these levels. Turkey also must increase TFP growth. Because the sources of TFP growth are better technology, better organization, specialization, and innovations on the shop floor, Turkey has to increase the channels of acquiring knowledge, as well as the competitive pressure in the economies under consideration. Besides creating the knowledge itself through strict enforcement of intellectual property rights, Turkey can adopt the knowledge created by others, mainly through international trade, FDI, and licensing. Finally, various economists have shown that trade liberalization affects productivity change positively.⁴⁴ TFP

growth also depends on the macroeconomic policies followed.

To elaborate statistically the relationship between the TFP and trade and macroeconomic policies, we follow the approach of Burnside and Dollar (2000) in which

$$(1.12) \quad TFP = \alpha_0 + \alpha_1 INFLATION \\ + \alpha_2 OPEN \\ + \alpha_3 BUDGET SURPLUS$$

where *INFLATION* refers to the rate of inflation measured by the GDP deflator, *OPEN* to the trade indicator, and *BUDGET SURPLUS* to the ratio of budget surplus to GDP. In the equation, the second term indicates the effect of instability in macro policies. It is hypothesized that instability in macroeconomic policies negatively influences the TFP and that its coefficient should therefore be negative. The third term refers to trade policies measured by the ratio of exports and imports to GDP. The coefficient would be positive if trade liberalization contributes to increases in the TFP. Finally, it is hypothesized that a budget surplus positively influences the TFP. Insolvent debt paths characterized by large budget deficits will require monetization of debts and thus inflation, leading to instability in the economy. Uncertainty from instability reduces both the willingness and the capability of economic units to take a long-term view toward increasing efficiency, which eventually decreases the TFP. Furthermore, falling budget deficits will lead to greater private use of private savings, leading to increases in the TFP.

Based on annual data for 1951–99, the estimation yields

$$(1.13) \quad TFP = 0.593 - 0.0713 INFLATION \\ (0.477) \quad (-2.741) \\ + 0.2454 OPEN \\ (2.693) \\ + 0.6832 BUDGET SURPLUS \\ (1.996)$$

$n = 49$ (1951–99); $R^2 = 0.311$; $DW = 2.2686$.

The variables have the expected signs. Instability in macroeconomic policies proxied by the inflation rate negatively influences the TFP. Yet trade liberalization and budget surplus positively affect the TFP.

The factors just mentioned determine productivity and its growth rate, which, in turn, influence the growth rate of GDP. However, for a given level

of productivity growth, GDP growth depends positively on the growth rate of employment, and the level of employment in the economy is determined largely by the flexibility in labor markets. Increases in labor market flexibility increase employment and reduce the unemployment rate in the economy. Thus, GDP increases until labor is fully employed with increases in labor market flexibility.

In summary, to increase the growth rate of its GDP, Turkey must (1) increase not only its investment ratio but also its domestic savings rate, (2) increase its investment in human capital formation, (3) follow outward-oriented and prudent macroeconomic policies, and (4) increase the flexibility in the labor market. The pursuit of these policies, however, should not jeopardize the sustainability of fiscal policy or the sustainability of the current account.

Exchange Rate Policy

As for an appropriate exchange rate regime, the Maastricht criteria do put restrictions on the permissible exchange rate regime after accession. Floating within a band or target zone measuring no more than 15 percent from a euro central rate, with intervention at or within margins of the band, is permissible. Even without adopting a formal target zone, the country could manage to maintain its exchange rate within 15 percent of some euro central rate. Definitely permissible under the Maastricht exchange rate criterion are a conventional fixed exchange rate regime and a currency board with the euro. Furthermore, any of the previous regimes could be combined with the adoption of the euro as a parallel currency. Under such a scheme, the euro would be joint legal tender with the domestic currency. However, full, unilateral euroization, with the abolition of the domestic currency, is not compatible with the Maastricht criteria for joining the EMU. The argument is that, once the domestic currency has been abolished, the Council of Ministers can no longer determine the conversion rate at which the candidate EMU member's currency eventually joins the EMU.

Before we turn to the question of what the exchange rate arrangement for Turkey ought to be during the preaccession period, a quick glance at current practice by the 10 new members and candidate countries is useful. Table 1.9 characterizes the current exchange rate regime of each of

these countries. Among the 10 CEE countries, Bulgaria, Estonia and Lithuania have currency boards with respect to the euro; Latvia has a fixed exchange rate regime with a peg against the special drawing rights (SDR); Hungary has a target zone with a central rate fixed against the euro and a 15 percent fluctuation band on either side; the Czech Republic, Slovakia, Slovenia, and Romania have managed float; Poland has floating currency.

The countries under consideration had opted during the early 1990s for different exchange rate regimes. Although most of them chose some kind of fixed exchange rate arrangements, others such as Slovenia opted for more flexible solutions. Since then, most of these countries have moved toward more flexible exchange rate arrangements. For example, Poland now has fully flexible exchange rates. Meanwhile, in all of these countries except Romania inflation is under control, and as of 2003 five countries satisfied the Maastricht condition on inflation (the Czech Republic, Estonia, Lithuania, Poland, and Bulgaria). All of these countries are interested in adopting the euro as early as possible. According to Nuti (2002), the benefits of early adoption of the euro include greater exchange rate certainty, greater policy credibility, lower transaction costs, lower interest rates, greater macroeconomic stability, and greater economic integration through both trade and investment. The costs of euroization are loss of seigniorage, loss of a lender of last resort, and, more generally, loss of monetary policy.

According to the optimum currency area literature of Mundell (1961) and McKinnon (1963), the costs will exceed the benefits of joining the currency area as long as the country exhibits a high degree of nominal rigidity in domestic prices and costs, a relatively large size in terms of GDP and low degree of openness to trade in real goods and services, a high incidence of asymmetric (nation-specific) shocks as opposed to symmetric shocks, a less diversified structure of production and demand, a low degree of real factor mobility across national boundaries, and an absence of significant international (and supranational) fiscal tax transfer mechanisms. Consider the case of asymmetric shocks and assume that the monetary policy of the Eurosystem does not take into account the business cycle in the accession country. Also assume that a shock calls for depreciation of the accession country's real exchange rate. Under these assump-

tions, the Eurosystem's monetary policy will not change, and real depreciation will call for a lower price level in the accession country. Thus if prices and wages are downward inflexible in the accession country, higher unemployment or capacity utilization may result—a situation that might be avoided if the accession country conducted its own monetary policy and devalued its currency in nominal terms. Yet as long as the accession country conducts a large share of its trade with countries in the Euro Area, the likelihood of the country being hit hard by an external shock originating from a country or region outside the EU is rather small. A high degree of real factor mobility can be an effective substitute for nominal exchange rate adjustments in the face of symmetric shocks. Real factors, whose mobility matters, are labor and physical capital. Finally, the existence of international (and supranational) fiscal tax transfer mechanisms with serious redistributive powers spanning the member countries of the currency area will ensure compensation of the loss of the exchange rate instrument if the accession country were to give up monetary autonomy.

The optimum currency area literature emphasizes that during the period in which the conditions just stated are not satisfied, it is advisable for the accession country to adopt a flexible exchange rate regime. Clearly, any individual CEE country should have doubts about the net advantage of giving up national monetary independence. The migration of workers is not free, and all the candidate countries are relatively small compared with the Euro Area, with the exception of Poland and Romania, and then only in terms of population. The candidate countries are all very open to the EU, and the diversification of exports to the EU is growing. As for the instruments to absorb asymmetric shocks in the absence of independent monetary and exchange rate policies, the picture for the CEEs does not look worse than that for the existing EMU members.⁴⁵ Maurel (2002) notes that one cannot assess *ex ante* the optimal currency area criteria, because the mere fact of entering a monetary union also influences the way in which those criteria are satisfied. Corricelli (2002) emphasizes that the 10 candidate countries would incur relatively small losses from asymmetric shocks and that the CEE countries do qualify to join the EMU.

Buiter and Grafe (2002) point out that only two exchange rate regimes are sustainable in the long run. These are the free-floating exchange rate and a symmetric monetary union, which is defined to be

a monetary union with a monetary authority that satisfies the following conditions: (1) its mandate spans the entire monetary union, (2) it acts as lender of last resort on the same terms in every union member state, (3) seigniorage is shared fairly among all union member states, and (4) it is accountable to the legitimate political representatives of the citizens of the whole union. To join a monetary union with a fixed exchange rate, a country must resolve its fiscal problems, attain price stability, achieve a sound banking sector, and ensure its current account is sustainable. Until these conditions are satisfied, Turkey should avoid adopting a fixed exchange rate regime. Currency board arrangements and euroization should not be alternatives for Turkey.⁴⁶ Because participation in the EMU is a must for Turkey, it will ultimately be part of a symmetric monetary union.⁴⁷ But during the period before accession, Turkey could pursue an exchange rate policy with central bank interventions aimed at attaining the long-run equilibrium value of the RER. In the terminology of the IMF's "Exchange Arrangements and Exchange Restrictions Annual Report," we thus refer to "Crawling Band" with a ± 10 percent width.⁴⁸ The country could pursue this policy until it resolves its fiscal problems, attains price stability, and achieves sound banking sector and sustainability in the current account.

Conclusion

The criteria for accession to the EMU include a ceiling for the permissible rate of inflation one year prior to accession and a constraint on the permitted variations of the nominal exchange rate—membership in the ERM for a two-year period prior to accession while observing the normal fluctuation limits of the ERM. This constraint means that Turkey would be free to choose the exchange rate regime until accession. During this period, the risk of speculative attacks on the Turkish currency will be unavoidable, unless Turkey establishes a sound fiscal framework, achieves a sound banking sector, and ensures that its real exchange rate equals its long-run equilibrium level. In addition, Turkey should pursue a policy of maintaining the real exchange rate at around its long-run equilibrium level. By contrast, a look at fiscal issues reveals that Turkey, to reduce its debt-to-GDP ratio from its 2003 level of 80.2 percent to 60 percent over time, must stick to the

primary surplus target of at least 6.5 percent of GNP, even in the face of the increased costs of EU accession for a considerable period of time. Any downward deviation from the target will postpone achievement of the 60 percent debt-to-GDP ratio. The primary surplus target of at least 6.5 should be achieved within the context of a fiscal reform that will broaden the tax base by reducing the tax burden substantially on both labor and capital.

Notes

1. The authors thank Juergen von Hagen and seminar participants at the Center for European Integration Studies (ZEI) in Bonn for their useful comments. They are particularly in debt to anonymous referees, whose comments helped them to correct several errors in an earlier draft. Sübidey Togan thanks ZEI for its hospitality and the Alexander von Humboldt Stiftung for financial support while this paper was written.

2. The value of the correlation coefficient between the monthly series of annual CPI inflation and the monthly series of the annual growth rate of base money is 0.7572, and that between the monthly series of annual CPI inflation and the monthly series of the annual rate of change in the exchange rate is 0.7698.

3. See, for example, Metin (1995, 1998), Lim and Papi (1997), and Kibritçioğlu (2002).

4. The output gap, which has been found to be stationary, and the dummy variable have been included in the Johansen cointegration test as exogenous variables.

5. Anyone constructing real exchange rate indices is faced with choosing the price index, the currency basket, weights, and a mathematical formula. In formulating the RER, we use the CPI, because these data are available on a monthly basis for a large number of countries. For the currency basket, we consider countries that are major competitors of Turkey in world markets, as well as major suppliers of imported commodities to Turkey. These countries are the following: Western Europe: Belgium, France, Germany, Greece, Italy, the Netherlands, Portugal, Spain, Switzerland, and the United Kingdom; America: Brazil, Canada, Mexico, and the United States; Middle East and North Africa: Egypt, Iran, Syria, Tunisia; Central and Eastern European and Commonwealth of Independent States countries: Czech Republic, Hungary, Poland, Russia; Asia: China, Indonesia, Japan, Republic of Korea, Malaysia, Taiwan (China), Thailand. To determine the weights of different countries, we use the approach developed by Zanetto and Desruelle (1997), in which overall trade weights are derived by combining the bilateral import weights with the double export weights, using the relative size of Turkish imports and exports in overall Turkish trade to average both sets of weights. In formal terms, the import weight can be expressed as $w_i^m = (M_i/M)$, the export weight as

$$w_i^x = \left(\frac{X_i}{X} \right) \left(\frac{y_i}{y_i + \sum_h X_h^i} \right) + \sum_{k \neq i} \left(\frac{X_i^k}{X} \right) \left(\frac{X_h^k}{y_k + \sum_h X_h^k} \right)$$

and the overall weight as

$$w_i = \left(\frac{M}{X + M} \right) w_i^m + \left(\frac{X}{X + M} \right) w_i^x$$

where M_i denotes Turkish imports from country i , M the total value of Turkish imports, X_i Turkish exports to country i , X the total value of Turkish exports, y_i the value of domestic manufacturing production for the home market of country i , and X_i^k exports of country k to country i . The formula used to estimate the RER is

$$RER = \prod \left[\frac{CPI_i / E_i}{CPI / E} \right]^{w_i}$$

where \prod stands for the product sign, i for the index that runs over the country's trade partners, E_i for the exchange rate defined as domestic currency per unit of U.S. dollar of country i , E for the Turkish lira/U.S. dollar exchange rate, and w_i for the competitiveness weight attached by Turkey to country i , calculated using the method of Zanello and Desruelle (1997).

6. Turkey opened the capital account in 1989 before it had taken measures to upgrade banking and financial market supervision and regulation, adopt international auditing and accounting standards, strengthen corporate governance and shareholder rights, and modernize bankruptcy and insolvency procedures. The 1994 and 2001 crises occurred while the country was facing large fiscal deficits, public debts, and high inflation rates. Problems of competitiveness led to substantial current account deficits. In addition, the currency and maturity mismatches on the balance sheets of the banks had left the authorities with little leeway for using either interest rate or exchange rate adjustments to restore balance without undermining the stability of the banking sector. Finally, there was an excessive dependence on short-term foreign borrowing to finance the current account deficits. These weaknesses contributed substantially to the balance of payments crisis of 1994 and 2001.

7. Let $p^* E/p$ be the RER where p^* denotes the gross domestic product (GDP) deflator in the foreign country, E the exchange rate, and p the GDP deflator in the home country, and let $py = wL + rK$ be the nominal GDP where y stands for real GDP, w the nominal wage rate, L total employment, r the return on capital, and K the stock of capital. Expressing the capital income in this equation as $rK = \lambda (wL)$, where λ stands for the profit margin, the RER can be written as

$$\frac{Ep^*}{p} = \frac{\left(\frac{y}{L} \right) Ew^*(1 + \lambda^*)}{\left(\frac{y^*}{L^*} \right) (1 + \lambda)w}$$

where (y/L) denotes labor productivity in the home country, (y^*/L^*) labor productivity in the foreign country, λ^* the profit rate in the foreign country, and w^* the wage rate in the foreign country. Thus for given values of productivities and profit rates in the two countries, depreciation of the RER leads to a decrease in wages measured in foreign currency (w/E).

8. The severity of the 2001 crisis when compared with the effect of the previous foreign exchange crisis is explained by the fact that by 2001 Turkey had a high level of "liability dollarization," with high public and private foreign debt denominated in foreign currencies, and a high share of foreign currency-denominated bank deposits. The sharp depreciation caused a large increase in both the gross and the net indebtedness of the economy, which more than offset the positive effect of depreciation on the demand for exports.

9. In addition to the size of the current account deficits, the quality of the sources of financing the deficit is important. A high percentage of short-term debt increases the probability that sudden capital outflows will lead to a crisis. It is recognized that foreign direct investment (FDI) is by far the surest form of external financing. But FDI flows into Turkey have been rather low. Thus external sustainability is an important issue for Turkey.

10. Real interest rate is defined as

$$r_1 = \left[\left\{ \frac{1 + \left(\frac{i_t}{100} \right)}{1 + \left(\frac{\pi_t}{100} \right)} \right\} - 1 \right] * 100$$

where i_t denotes the annual rate of interest on government bonds and treasury bills, attained as the weighted average rate in auctions during the month t weighted by total sales during the month, and π_t denotes the expected annual rate of inflation at time t over the period t to $t + 12$. In the calculations of the real interest rate, we set the expected annual rate of inflation at time t over the period t to $t + 12$ equal to the actual annual rate of inflation over the period t to $t + 12$. The average level of real interest rates over the period February 1994 to October 2003 was 25.5 percent.

11. Net debt figures are from IMF (2004), measured in percent of centered GNP, defined as the sum of quarterly GNP in the last two quarters of the year and in the first two quarters of the following year, in line with the IMF definition.

12. Consideration of total tax revenues, including social security contributions, reveals that total tax receipts in Turkey amounted in 1999 to 31.3 percent of GDP, compared with general government receipts of 40.7 percent in EU countries. According to Noord and Heady (2001), the unweighted average of total tax revenue as a percent of GDP in the EU is 42.1 percent, and the GDP weighted average is 40.7 percent.

13. Other factors contributing to the country's relatively low unemployment rate are labor migration from the country and the achievement of relatively high growth rates of GDP over time.

14. Various methods can be used to estimate the size of the informal sector in the labor market.

Castells and Portes (1989) define informal employment as the sum of unpaid family workers, domestic servants, and the self-employed, minus professionals and technicians.

An alternative approach to determining the size of the informal sector considers the coverage of workers by social security institutions (Assaad 1997). Workers are divided into two groups: those who are covered by a social security program and those who are not. The covered workers are considered to be part of the formal sector and uncovered workers to be part of the informal sector.

A third approach to determining the size of the informal sector is provided by Bulutay (1999). He considers the data provided by Turkish Household Labour Force Survey Results on "employed persons by size of workplace and status in employment." As he defines the informal sector, it consists of (1) the self-employed, (2) unpaid family workers, (3) employers who employ two or three workers, and (4) regular and casual employees in private sector work places that employ one to three workers.

In his estimation of informal employment, Togan (1997) defines employment in the informal sector as the sum of employment in the agricultural sector and in the private, non-agricultural informal sector. He determines employment in the private, nonagricultural informal sector by deducting from regular and casual employers in the nonagricultural sector

(reported by the State Institute of Statistics) the number of registered wage earners reported by the Ministry of Labor.

A fifth estimation method used to determine the size of the informal sector considers the share of subcontracting activity in the economy.

Calculations by each of these methods reveals that, on average, informal labor makes up about 60 percent of total employment in Turkey.

15. The growth rate of GDP at time period t is calculated as $[GDP(t) - GDP(t-1)] * 100 / GDP(t-1)$. The average annual growth rate over the time period under consideration is then the average of these growth rates over the indicated time period.

16. According to Italianer (2002), there are two formal reasons a new member state has this status. First, the procedures foreseen in Article 121(1) for assessment of the conditions for adoption of the euro cannot be applied before accession. Second, one of these conditions cannot possibly be met upon accession, because it requires participation in the Exchange Rate Mechanism (ERM II), which is not open to nonmembers. More important, the economic rationale for the construction of the EMU presupposes participation in the internal market before adoption of the euro. The free movement of goods, the freedom to provide services, the free movement of persons, and full liberalization of capital movements are expected to be accomplished before adoption of the euro, except for negotiated transition periods in a limited number of areas.

17. Price stability requires that, over a period of one year before the examination, a country's inflation rate not exceed the average rate of the three best-performing EU member states in price stability by more than 1.5 percentage points. Interest rate convergence requires that the average long-term interest rate not exceed that of the three EU countries with the best inflation performance by more than two percentage points. The budget deficit criterion requires that the ratio of general government deficit to GDP not exceed 3 percent. The government debt criterion requires that the ratio of general government debt to GDP not exceed 60 percent. Finally, the exchange rate stability criterion requires that the country observe the normal fluctuation margins of the ERM II for at least two years without devaluing. In the ERM II, the euro is the anchor currency. Although the standard fluctuation band for the exchange rates of the partner countries is ± 15 percent around the central rate, narrower bands are possible.

18. This section is largely based on Mottiar (1999).

19. This section is based mainly on the work of Gali and Perotti (2003).

20. ECOFIN, a formation of the Council of the European Union, is made up of the ministers responsible for economic affairs and finance in the EU countries.

21. In late 2003, France, Portugal, and Germany faced excessive deficit proceedings after violating the 3 percent limit for three years in a row. In January 2004, this situation culminated in the European Commission taking legal action against the council of finance ministers over the latter's decision to suspend the SGP. These events have led to substantial public debate on the effectiveness of the SGP for ensuring fiscal discipline, and on the wider issue of the optimal institutional structure for fiscal policy within the EU. See, for example, Fatas and others (2003).

22. This section draws heavily on European Commission (1998), European Parliament (1999), and Italianer (2002).

23. At the Copenhagen summit of June 1993, the EU member states agreed that "accession will take place as soon as an associated country is able to assume the obligations of membership by satisfying the economic and political conditions required. Membership requires that the candidate country has

achieved stability of institutions guaranteeing democracy, the rule of law, human rights and respect for and protection of minorities, the existence of a functioning market economy as well as the capacity to cope with competitive pressure and market force within the Union. Membership presupposes the candidate's ability to take on the obligations of membership including adherence to the aims of political, economic and monetary union" (European Council 1993). These criteria have from then on been referred to as the Copenhagen criteria.

24. With the entry into force of the Treaty on European Union on November 1, 1993, the principle of full freedom of capital movements was incorporated into the treaty. As of January 1, 1994, which corresponds to the start of the second stage of the economic and monetary union, Articles 73a–73g of the Treaty on European Union introduced new arrangements for capital movements. Article 73a states that as of January 1, 1994, Articles 67–73 of the Treaty of Rome no longer apply and are replaced by Articles 73b–73g of the Maastricht Treaty. Article 73b introduces the principle of full freedom of capital movements and payments, both between member states and between member states and third countries. This article is directly applicable. Article 73c introduces the possibility of maintaining certain existing restrictions vis-à-vis third countries. Article 73d sets out the areas in which member states can maintain information, prudential supervision, and taxation requirements without capital movements being hindered. Article 73e provides for the derogations adopted prior to the entry into force of the Treaty on European Union to be maintained for a transitional period. Article 73f provides for the possibility of taking safeguard measures if movements of capital to or from third countries cause serious difficulties for the operation of the economic and monetary union. Article 73g allows the European Community or a member state to take measures on movements of capital to or from third countries for security or foreign policy reasons.

25. In addition, member states participating in the Euro Area have to prepare yearly stability programs that will report on the medium-term budgetary objectives and on measures the member states intend to take toward fiscal convergence.

26. On voting modalities in the Governing Council after enlargement, see European Central Bank (2003a).

27. The figures for the government-deficit-to-GDP ratio and the debt-to-GDP ratio were obtained from State Planning Organization (2004). These figures have been harmonized with the deficit and debt definitions of the EU.

28. Consideration of current account sustainability in Turkey reveals that under perfect capital mobility there will always be an unavoidable risk of speculative attacks on the Turkish currency, unless the country resolves its fiscal problems, attains price stability, achieves a sound banking sector, and brings its real exchange rate equal to the RER's long-run equilibrium level. Currently, Turkey is trying hard to satisfy the first three conditions, but its RER is, as emphasized later in this chapter, overvalued.

29. Ball (1994) defines trend inflation as a centered nine-quarter moving average of the actual inflation rate. In our calculations, we start with the monthly consumer price index series and determine the quarterly CPI series as the average of the three monthly CPI series. Thereafter, we determine the annual quarterly inflation rate as $(p(t) - p(t-4))100/p(t-4)$, where $p(t)$ denotes the CPI value during quarter t . The trend inflation is then defined as the average of inflation rates between $(t-2)$ and $(t+2)$.

30. We are grateful to Zafer Mustafaoglu of the SPO for providing the estimates of potential output and output gap projections.

31. Similar results were obtained by Yavuz and Çetinkaya (2002).

32. As emphasized earlier, the reason for this flexibility lies in the existence of a formidable informal sector, whose wage-setting mechanism is quite different from that of the formal sector.

33. As Turkey begins to enforce the labor, tax, and social security laws within the economy, labor market flexibility will decrease, unless the country decreases the tax and social security contribution rates substantially and changes the labor law accordingly.

34. For estimates of the costs of EU accession for Turkey, see in this volume chapter 2 on agriculture, chapter 9 on labor markets, and chapter 11 on the environment.

35. A flat tax on income of 13 percent was introduced in Russia in 2001. The income tax revenue growth then outstripped the rates of economic growth and inflation in both 2001 and 2002. The flat tax has also boosted the share of total tax revenue held by the personal income tax. After the adoption and success of the flat tax in Russia, Serbia, Slovakia, and Ukraine adopted it, and other countries are in the process of adopting it as well.

36. If tax rates are reduced and the tax system is simplified but taxes cannot be effectively enforced in the private sector, the country may find itself facing major revenue shortfalls.

37. During 2003, inward and outward FDI flows amounted to 0.23899 percent and 0.20990 percent of GDP, respectively. Thus the net FDI inflow was 0.0290946 percent of GDP.

38. To deal with the simultaneity problem in a simple way, a four-quarter lagged value of RER is used as the instrumental variable.

39. The literature basically includes two approaches to determining the long-run equilibrium value of the RER. According to Williamson (1994) and Wren-Lewis and Driver (1998), the fundamental equilibrium exchange rate (FEER) is the real exchange rate that would exist when the economy is at full employment (internal balance) and in current account equilibrium (external balance). Thus the FEER is the RER that will bring the current account into equality with the “sustainable” capital account, where home and foreign aggregate outputs are set at their full employment values. By contrast, the model of a behavioral equilibrium exchange rate (BEER) by Clark and MacDonald (1998) analyzes the actual behavior of the RER using econometric techniques, where the reduced form equation is estimated with assumed longer-term fundamentals and short-term variables using cointegration analysis. MacDonald and Stein (1999) and Hinkle and Montiel (1999) consider productivity and net foreign assets as fundamental variables. Other variables identified in the literature include real interest differentials, measures of openness of trade and the exchange system, and size of fiscal balance. Finally, Stein and Allen (1995) distinguish between medium- and long-term factors influencing the RER. The approach developed in this chapter can be considered an extension of the FEER approach. The latter approach requires that the NICA-to-GDP ratio be sustainable.

40. The economic units may begin to assume they can avoid the rule of law.

41. Productivity is defined as GDP measured at constant prices, Q , divided by employment, L —that is, Q/L .

42. Letting Q stand for GDP, K for capital, L for labor, and H for the index of labor quality, total factor productivity, using the Cobb-Douglas production function, is defined as $Q/[K^\alpha(HL)^{(1-\alpha)}]$, where α denotes the output elasticity with respect to capital.

43. Symbolically, the relations can be expressed by the equations

$$\dot{q} = \dot{A} + \alpha \dot{k} + (1 - \alpha) \dot{H}$$

and

$$\dot{Q} = \dot{q} + \dot{L}$$

where \dot{Q} denotes the growth rate of output, \dot{q} the growth rate of labor productivity, \dot{A} the growth rate of technical progress, \dot{k} the growth rate of the capital-to-labor ratio, \dot{H} the growth rate of labor quality, \dot{L} the growth rate of employment, and α the output elasticity with respect to capital.

44. See, for example, Özler and Yılmaz (2003). Yet many economists argue to the contrary. They maintain that if trade liberalization reduces the domestic market shares of domestic producers, the incentives of those producers to invest in superior technologies might decrease as protection is lifted. Furthermore, they stress that liberalization of trade under asymmetric information in markets may prove fragile for developing economies.

45. On the similarity of business cycles of countries in the Euro Area and the accession countries, see European Forecasting Network (2003).

46. Before the collapse of its currency regime in 2001, Turkey did have a regime very close to the currency board. But the system failed, because Turkey had neither a sound fiscal framework nor a sound banking sector and had not attained price stability. Furthermore, it did not have a graceful exit strategy.

47. The European Monetary Union is such a symmetric monetary union that has strict conditions on fiscal policy. The budgetary decisions by member countries are subject to surveillance by the EMU as a whole in the context of the requirements set out in the Maastricht Treaty and subsequently the Stability and Growth Pact.

48. “Crawling pegs” refers to pegs with central parity periodically adjusted in fixed amounts at a preannounced rate or in response to changes in selected quantitative indicators. “Crawling band” refers to crawling pegs combined with bands larger than ± 1 percent. “Managed Floating with no Preannounced Path for the Exchange Rate” refers to regimes in which the monetary authority intervenes in the foreign exchange market without precommitment to a preannounced path for the exchange rate. Finally, “Independent Floating” refers to regimes in which the exchange rate is market-determined, with any foreign exchange intervention aimed only at preventing excessive volatility in the exchange rate movement. For a system of classification of exchange rate regimes different from that of the IMF, see Reinhart and Rogoff (2002).

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