

Box 1. Policy Assumptions Underlying the Projections

Fiscal policy assumptions for the short term are based on official budgets adjusted for any deviations in outcomes as estimated by IMF staff and also for differences in economic assumptions between IMF staff and national authorities. The assumptions for the medium term take into account future policy measures that are judged likely to be implemented. Both short-term and medium-term projections are generally based on information available through August 1997. In cases where future budget intentions have not been announced with sufficient specificity to permit a judgment about the feasibility of their implementation, an unchanged structural primary balance is assumed, unless otherwise indicated. For selected advanced economies, the specific assumptions adopted are as follows (see Tables 3, 11, and A14–A16 in the Statistical Appendix for the projected implications of these assumptions).

United States: The fiscal projections through 2002/03 are based on revised U.S. Congressional Budget Office (CBO) budget estimates released in early September, which are adjusted for differences in the IMF staff's forecasts for key U.S. economic variables and the forecast underlying the CBO estimates. These projections assume that the terms of the Balanced Budget and Taxpayer Relief Acts of 1997 enacted in August 1997 are implemented as envisaged. New caps established for discretionary spending (defense and nondefense spending that must be appropriated by Congress annually) would reduce such expenditure by a total of about \$90 billion over the next five fiscal years. Mandatory spending (i.e., expenditures that are required under current law and are not part of the annual appropriations process) would be reduced by nearly \$110 billion over the next five years, largely reflecting cuts in Medicare and in Medicaid. The Taxpayer Relief Act also provides for net tax cuts totaling \$80 billion over five years. As a result of the measures enacted, the budget is now expected to be in surplus by \$40 billion (0.4 percent of GDP) in 2002/03.

Japan: The projections take account of the 1997 budget and existing plans with regard to spending in the 1998/99 budget and 1999/2000 investment spending. No further consolidation measures are assumed, and general government investment is assumed to rise by 5 percent a year after 1999/2000. As a result, public investment is projected to total ¥530 trillion between 1995/96 and 2004/05, compared with ¥630 trillion assumed in the medium-term public investment plan currently being reconsidered. While the cabinet has approved medium-term fiscal consolidation targets for the general government balance (excluding social security), these targets have not been incorporated into legislation, as the government has not detailed the policies by which such targets will be attained.

Germany: The fiscal projections for 1997 take into account the federal government's consolidation pack-

age; the supplementary federal budget, which includes a spending freeze and additional privatizations; the 1997 Tax Act; and the July projections of the Financial Planning Council for the deficits of lower levels of government. The fiscal data and projections incorporate the intended exclusion of public hospitals from the general government sector (in accordance with EUROSTAT rules), which reduces the general government deficit by 0.2 percentage point of GDP from 1996 onward. The difference with the official deficit projection of 3.0 percent of GDP in 1997 is due to a slightly weaker macroeconomic environment. For 1998, the projections incorporate federal draft budget and official tax estimates, adjusted for the IMF staff's macroeconomic projections; for the medium term, the projections assume an unchanged structural primary balance.

France: The projection for 1997 takes account of measures announced through August and of revised projections for taxes and public expenditure in 1997. The projection for 1998 entails a decline in the ratio of revenue to GDP, essentially equivalent to the adjustment made for the one-off transfer from France Télécom received in 1997. On the spending side, it reflects the impact of expenditure decisions made in August 1997 that seek to hold constant in the 1998 budget real outlays of the state; but it does not take into account new measures that the authorities may implement to reduce social security expenditure. Beyond 1998, the ratio of revenue to GDP is assumed to be constant. Wages in the public sector are projected to grow at the same pace as in the private sector, with personnel constant. The assumed growth of social security spending is determined by present entitlements; and other primary expenditure in the public sector is assumed to increase at about the same rate in real terms as potential output.

Italy: The projections take into account measures included in the 1997 budget and the corrective package of March 1997. For 1998–2000, the projections are based on IMF staff estimates for the “current services” budget (*tendenziale*), corrected for the measures announced in the three-year plan for those years. It is assumed that the plan's measures are fully implemented and yield the officially estimated amounts. Projections beyond 2000 assume an unchanged structural balance.

United Kingdom: The budgeted spending ceilings for 1997–98 and 1998–99 are assumed to be observed. Thereafter, noncyclical spending is assumed to grow in line with potential GDP. For revenues, the projections incorporate, for 1997–98 and 1998–99, the announced commitment to raise excise taxes on tobacco and road fuels each year in real terms; thereafter, real tax rates are assumed to remain constant.

Canada: Federal government outlays for departmental spending and business subsidies are assumed to conform to the commitments announced in the February 1997 budget, with the exception that the medium-term floor for transfers to the provinces under the Canada Health and Social Transfer program would be raised beginning in 1997/98. Other outlays and revenues are assumed to evolve in line with the IMF staff's macroeconomic projections. The projections include contingency reserves of \$3 billion for 1997/98 and 1998/99, and assume a reduction of 10 cents in the employment insurance premium in 1998 and a reduction of 5 cents in each year thereafter. The fiscal situation of the provinces is assumed to be consistent with their stated medium-term targets.

Australia: Projections are based on the Commonwealth government's 1997–98 budget, adjusted for differences between the economic projections of the IMF staff and the authorities. Unchanged policies are assumed for the state and local government sector from 1997.

Belgium: The 1997 projections are based on the 1997 budget, on developments since the budget in the public finances and in interest rates, and on the IMF staff's macroeconomic projections. For 1998, an allowance is made for some slippage in social security expenditure, which is only partially offset by lower interest payments and a narrowing of the output gap. Beyond 1998, the structural primary balance is assumed unchanged.

Greece: Projections for 1997 reflect the IMF staff's assessment of the outcome of the official budget. Measures to meet the targets of the convergence plan are still being defined in the 1998 budget under preparation, and the projections at this stage are based on IMF staff's estimates on a current services basis.

Israel: The fiscal assumptions are in line with the government's medium-term fiscal plan, which establishes annual targets for the central government budget deficits until 2001.

Korea: Projections for 1997–2002 assume that the central and general government budgets will be broadly in balance.

Netherlands: The 1997 projections are based on implementation of the 1997 budget, and the IMF staff's macroeconomic projections. The 1998 projections reflect existing expenditure policies and take into account announced tax cuts. Beyond 1998, the primary structural balance strengthens slightly, reflecting the continuation of current expenditure policies.

Portugal: The 1997 projections are based on policies adopted through late July 1997, and include a number of unbudgeted items, notably a capital transfer from Banco Nacional Ultramarino (BNU) and overruns in health

spending. For 1998, the projections assume a decline in total revenues as a share of GDP due to the nonrecurrent nature of the BNU transfer and a declining yield of the tax arrears recovery plan. Expenditure projections are based on unchanged policies. For 1999 and beyond, an unchanged structural primary balance is assumed.

Spain: Fiscal projections for 1997 assume that the budget is implemented as passed by parliament but allow for differences in macroeconomic assumptions and some expenditure overruns that are partially offset by lower interest payments. For 1998 and beyond, it is assumed that there is no major change in tax policy, that the wage freeze ends, that public sector wages grow at roughly the rate of increase of wages in the private sector, and that goods and services purchases remain constant as a share of GDP.

Sweden: The projections are based on the authorities' fiscal objectives set out in the 1997 Spring Budget Bill, which includes a balanced budget in 1998 and an average surplus of 2 percent of GDP over the cycle starting in 2001.

Switzerland: The projections for 1997–2000 are in line with official current service estimates. Beyond 2000, the general government's structural primary balance is assumed to remain unchanged.

* * *

Monetary policy assumptions are based on the established framework for monetary policy in each country. In most cases this implies a nonaccommodative stance over the business cycle, so that official interest rates will firm when economic indicators suggest that inflation will rise above its acceptable rate or range, and ease when indicators suggest that prospective inflation will not exceed the acceptable rate or range, that prospective output growth is below its potential rate, and that the margin of slack in the economy is significant. It is assumed that Economic and Monetary Union in Europe will be implemented from the start of 1999, in accordance with the agreed timetable. Until then, for the exchange rate mechanism (ERM) countries of the EU, which use monetary policy to adhere to exchange rate anchors, official interest rates are assumed to move in line with those in Germany, except that progress with fiscal consolidation may influence interest differentials relative to Germany. On this basis, it is assumed that the London interbank offered rate (LIBOR) on six-month U.S. dollar deposits will average 5.9 percent in 1997 and 6.3 percent in 1998; on six-month Japanese yen deposits will average 0.7 percent in 1997 and 1.2 percent in 1998; and on six-month deutsche mark deposits, 3.3 percent in 1997 and 4.0 percent in 1998. Changes in interest rate assumptions compared with the May 1997 *World Economic Outlook* are summarized in Table 1.

Box 2. Alternative Exchange Rate Assumptions for Japan

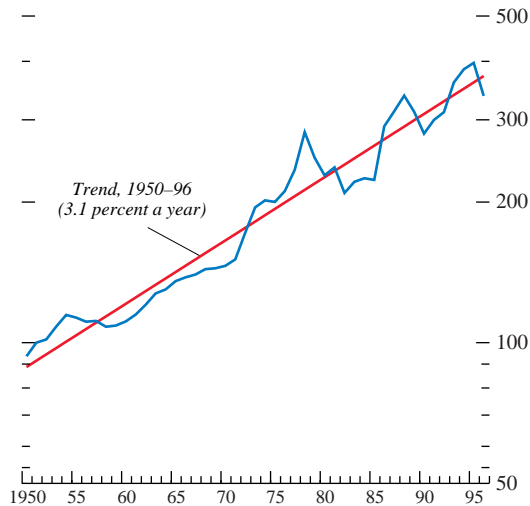
The *World Economic Outlook* projections are based, among other things, on the assumption that real effective exchange rates remain constant at the values observed in a recent historical “reference period.” For the current *World Economic Outlook*, for instance, exchange rates are set at their average levels during July 18–August 14, 1997. This convention avoids the need to make judgmental projections of exchange rates, which would be particularly problematic given the need to maintain consistency across countries in the *World Economic Outlook*’s assumptions for external variables. At the same time, however, it may be inconsistent with market expectations of future exchange rate movements, and also lead to tensions among various elements of the IMF staff’s forecast.

These issues are particularly relevant for Japan. Although it is difficult to directly measure longer-term market expectations, interest rates on yen assets are currently well below those on assets denominated in other major currencies. As well as reflecting lower inflation expectations for Japan, this interest differential is, in part, attributable to Japan’s weak cyclical position relative to major trading partners, especially the United States. Given a high degree of international asset substitutability, and the likely course of inflation rates, the interest differential can be interpreted as reflecting market expectations of real yen appreciation over the medium term. In the event, recent interest differentials imply an expected appreciation of almost 3 percent a year in real effective terms.¹ It is interesting to note that this is similar to the trend real appreciation of the yen over a long historical period (*see first figure*).

Regarding tensions in the projections, the assumption of a constant real exchange rate assumes away an important channel of macroeconomic adjustment. In particular, the projection for the external balance should be consistent both with the relationships determining trade flows and those determining the domestic saving-invest-

Japan: Real Effective Exchange Rate

(Based on consumer price indices, 1951 = 100)



ment balance. Over the medium term, as the economy returns to potential output, movements in the exchange rate would normally play a key role in bringing the trade balance into line with the underlying saving-investment balance. In the assumed absence of such movements, tensions may exist between the projection for the trade balance and those for saving and investment. Tensions of this type are evident for Japan. Specifically, the assumption of an unchanged real exchange rate leads to a gradual rise in the external surplus over the medium term to about 2½ percent of GDP. In contrast, the structural determinants of saving and investment—and especially the shift toward a more elderly population—point to a gradual decline in Japan’s underlying saving-investment balance and a corresponding reduction in the external surplus. This inconsistency raises the question of what will happen to reduce the external surplus, raise domes-

¹The nominal interest differential on five-year government bonds between other major industrial countries (weighted-average basis) and Japan stood at about 4¼ percent in mid-1997, while medium-term “consensus” forecasts by the private sector indicated a gap in projected inflation rates of about 1½ percent. The expected real appreciation is taken as the difference between these two numbers.

tic saving, or lower domestic investment in the period ahead.

To examine the implications of an alternative exchange rate path for the projection for Japan, a simulation was performed using the Japanese block of the IMF's multi-country simulation model, MULTIMOD. The simulation was constructed such that the path for the yen was fully consistent with projected interest rate differentials—in other words, in each future period, the yen appreciates in line with the differential between interest rates in partner countries and Japan.² This assumes that returns on assets denominated in yen and in other currencies are equalized: asset holders do not require a “risk premium” to hold one currency rather than another.

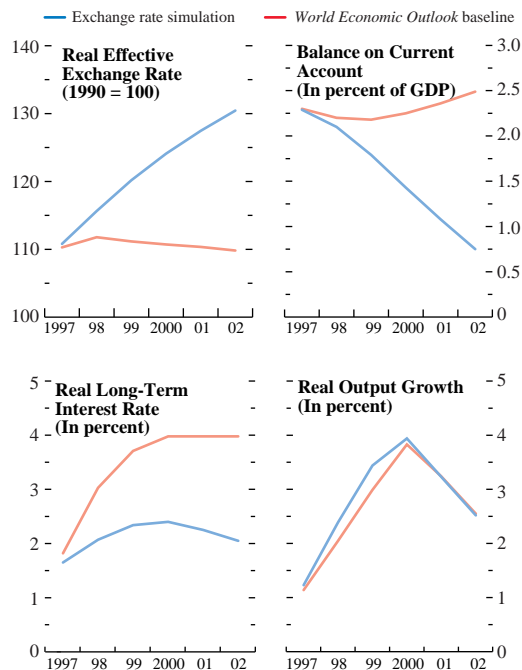
The *second figure* compares the results of this alternative scenario with the baseline projection. In the alternative scenario, the real effective value of the yen rises steadily to stand about 17 percent above baseline by 2002, implying an average rate of appreciation of just over 3 percent a year—similar to the market-based real interest differential discussed above. The current account surplus falls from about 2 percent of GDP in 1998 to less than 1 percent of GDP by 2002, as opposed to rising in the baseline. Offsetting the effect on aggregate demand of the higher real exchange rate, the real long-term interest rate in Japan stabilizes at around 2 percent, compared with the gradual increase to 4 percent in the baseline. Indeed, the near-term effects on demand of lower real interest rates dominate those of the higher exchange rate, and output grows somewhat more quickly in the alternative scenario during the first few years of the simulation. Output growth in both scenarios converges over time as the economy returns to potential.³

These results illustrate the sensitivity of some key elements of the projection for Japan—most notably for the external balance—to alternative exchange rate assumptions. Of course, this analysis is subject to a number of caveats. Shifts in Japan's trade behavior in recent years

²Foreign interest rates were held exogenous in the simulation, while domestic interest rates reflected the assumed response of the monetary authorities to developments in activity and prices.

³The level of potential output is somewhat higher in the alternative scenario, however, as lower real interest rates crowd in domestic investment, raising potential GDP.

Japan: *World Economic Outlook* Baseline and MULTIMOD Simulation Results



and the prospect of structural changes in the economy over the medium term may make past trends in the exchange rate an unreliable guide to the future. In addition, real interest differentials have often not provided an accurate forecast of subsequent developments in exchange rates, raising the question of whether they provide a suitable proxy for market expectations. Nevertheless, the results underscore the need to view the medium-term *World Economic Outlook* baseline as a conditional projection, as opposed to an unconstrained, fully consistent forecast for all macroeconomic variables.

Box 3. The European Union's Stability and Growth Pact

The Stability and Growth Pact clarifies how the surveillance of national fiscal policies will be carried out in Stage 3 of EMU, pursuant to the requirements of the Maastricht Treaty.¹ The treaty pays particular attention to the avoidance of “excessive deficits” and allows for the imposition of financial sanctions in Stage 3 when a country found to have an excessive deficit does not respond adequately to the advice of the Council of Ministers. But the treaty leaves some key questions open: What is meant by the exceptional and temporary circumstances in which the general government deficit can exceed 3 percent of GDP without being judged excessive? What time frame is envisaged for the various steps in the excessive deficit procedure? And in what circumstances would financial sanctions be invoked and what would be their size? By addressing these questions, the Stability and Growth Pact gives greater precision to how the excessive deficit procedure will operate in the euro area. At the same time, the pact strengthens the Council's surveillance of medium-term fiscal policies with a view to avoiding excessive deficits, and focuses this surveillance on the need for medium-term fiscal positions to be close to balance or in surplus.

Operation of the Excessive Deficit Procedure in Light of the Pact

A general government deficit in excess of 3 percent of GDP will be considered exceptional and temporary if it results from an unusual event outside the control of the member state in question or from a severe economic downturn, provided also that, should the unusual event or severe downturn have passed, Commission projections for the following year envisage the deficit falling back to 3 percent or less. To avoid an excessive deficit finding, the deficit would also have to remain *close* to the reference value. A decline in GDP of 2 percent in the year in question would as a rule be regarded as a severe downturn. The pact allows member states to argue that a smaller output decline was exceptional, on the basis of evidence such as the abruptness of the downturn or the cumulative loss of output relative to past trends. Countries have agreed not to claim exceptional circumstances for annual output declines of less than $\frac{3}{4}$ of 1 percent.

The excessive deficit exercise normally commences with the national authorities submitting by the beginning of March each year data on the prior year's fiscal outcome.² The Council would hand down any excessive deficit findings, together with its advice, by the end of

May and would impose financial sanctions by the end of the year on countries judged not to have responded adequately to its advice (or subsequently on countries that failed to follow through on their initial response). To avoid sanctions, a country would normally be expected to bring the deficit down to 3 percent of GDP or less in the year following that in which an excessive deficit was identified. However, the pact allows the Council to set a longer adjustment period if there are *special* circumstances (which are not defined in the pact). Sanctions would initially take the form of non-remunerated deposits, amounting to between 0.2 percent and 0.5 percent of GDP, depending on the size of the deficit. The deposit would be returned if the excessive deficit was corrected within two years; otherwise it would be converted into a fine. Additional deposits (also subject to conversion into fines) may be required each year following the initial deposit until the excessive deficit is corrected.

Strengthened Surveillance of Fiscal Positions

Under the pact, each country will aim for a medium-term fiscal position that is close to balance or in surplus so as to allow an adequate safety margin to avoid excessive deficits in the face of normal cyclical fluctuations. Countries will submit *stability programs* annually specifying how their medium-term fiscal goals will be realized. The Council will examine the initial programs and may choose to review the later submissions. It will provide advice where a program is judged inadequate, and program implementation will be monitored in the regular multilateral surveillance exercises. This should normally provide countries with an early warning from the Council if there is risk of an excessive deficit.

Implications for the Management of Fiscal Policy

While the pact reinforces the framework for fiscal discipline, a question arises as to how it might constrain countercyclical fiscal policy. A number of factors, in addition to any exercise of discretionary fiscal policy, are relevant to this, including the sensitivity of the fiscal position to the cycle; the underlying stance of fiscal policy; and the size and duration of cyclical fluctuations in the economy and the budget.

Estimates by IMF staff indicate that, on average in the EU, a 1 percent shortfall in output from potential worsens the fiscal balance by 0.6 percent of GDP, with most of this effect occurring in the year of the shortfall. For some countries, the impact of the cycle is larger; in Denmark, the Netherlands, Sweden, and the United Kingdom, the response parameter of the fiscal balance to GDP fluctuations is on the order of $\frac{3}{4}$ or higher. Where government finances are in structural balance and the cyclical response parameter is of average size, the operation of automatic stabilizers would accommodate an output gap of 5 percent without the deficit exceeding 3 percent of GDP. In a country with a response parameter of $\frac{3}{4}$, an underly-

¹The pact consists of two European Council Regulations—one on the excessive deficit procedure and the other on surveillance—which have the force of law, and a European Council Resolution, which gives guidance to the Commission, the Council, and member states in applying the pact.

²The exercise can also address planned breaches of the reference values.

ing surplus of about 1 percent of GDP would be needed to provide the same buffer.

Estimating the extent to which cyclical fluctuations alone might in the past have caused breaches in the Maastricht reference value, even with underlying fiscal balance, is complicated by uncertainty in the estimation of output gaps. A European Commission study found only three countries for which the largest cyclical deficit had exceeded 3 percent of GDP over 1961–96 (by a significant margin in Finland and Sweden, with a minor excess in Luxembourg).³ The authors noted that their methodology tended to yield smaller estimates of output gaps than that used by the IMF or the Organization for Economic Cooperation and Development (OECD). Another study, using World Economic Outlook data for 12 EU countries from the late 1970s to 1995, estimated that for most countries the standard deviation of the cyclical deficit was less than 2 percent of GDP.⁴ However, the largest cyclical deficit exceeded 3 percent of GDP in five cases: for Denmark, the Netherlands, and the United Kingdom, the excess was in the range of $\frac{1}{2}$ – $\frac{3}{4}$ of 1 percentage point, but it was considerably larger for Finland and Sweden. All these countries except Finland are marked by above-average sensitivity of the fiscal position to the cycle.

It is important to note that, under the standard procedures for the excessive deficit exercise, a country would not incur financial sanctions (initially a nonremunerated deposit) unless the deficit exceeded 3 percent of GDP for two consecutive years, with neither year classifiable as an exceptional and temporary circumstance, and the Council had concluded that the country had not taken effective action following its recommendations to eliminate the excessive deficit.⁵ Even then, special circumstances could allow an extended adjustment period without sanctions. The aforementioned Commission study, examining the actual changes in fiscal positions at times of recession or cyclical slowdown (including the effects of any discretionary measures), concluded that if countries had started from balanced fiscal positions prior to the cyclical weakening, deficits in excess of 3 percent of GDP would have persisted in the year after the recession in only 5 cases of severe recession (out of 24 cases of output decline greater than $\frac{3}{4}$ of 1 percent) and in 1 of mild recession.⁶ (In this

last case, the country had failed to reverse discretionary countercyclical policies despite a strong recovery in the postrecession year).

In general, it appears that the Stability and Growth Pact will not pose a great problem for the operation of automatic stabilizers if countries maintain balanced medium-term (structural) fiscal positions, or small surpluses in the case of countries whose fiscal positions are characterized by above-average sensitivity to cyclical fluctuations. This is not to deny that complications are inevitable in the implementation of the pact. Three can be noted here. First, deep and protracted recessions are likely to require recourse to the special circumstances clause. For such recessions, there may also at times be need for discretionary countercyclical policies, especially in the case of asymmetric shocks, where monetary policy would not be able to provide support. Second, the specification of the exceptional circumstances clause is less well suited to countries with relatively high trend output growth rates, which are less likely to experience output declines during periods of cyclical weakening. Some recognition of this is implicit in allowing accumulated output losses to be taken into account in assessing whether an output decline of between $\frac{3}{4}$ of 1 percent and 2 percent is exceptional, but additional recognition may be needed in implementing the special circumstances provision. Third, many countries at present fall short of the medium-term fiscal goal, placing them potentially in difficult positions if a cyclical weakening should occur early in Stage 3. In a different vein, one needs also to recognize that uncertainties in the measurement of output gaps, inter alia, can make it difficult to achieve a particular goal for the structural balance with a high degree of precision.

In any event, concerns about the potentially constraining effects on countries' abilities to pursue countercyclical fiscal policies need to be put into the perspective of the constraints imposed by large deficits in most EU countries over much of the past twenty-five years. From this viewpoint, the increased discipline involved in adhering to the pact may well permit a greater stabilizing role for fiscal policy than has been possible in most of these countries for many years. At the same time, the achievement of a high degree of price stability, together with the focus of the European System of Central Banks on conditions throughout the euro area (in contrast to the dominant influence of German economic conditions on monetary policy in countries participating in the exchange rate mechanism (ERM)), should allow monetary policy to play a greater stabilizing role than in the past for the euro area as a whole.

³M. Buti, D. Franco, and H. Ongena, *Budgetary Policies during Recessions: Retrospective Application of the Stability and Growth Pact to the Post-War Period*, Economic Paper No. 121, European Commission (May 1997).

⁴Paul R. Masson, "Fiscal Dimensions of EMU," *Economic Journal*, Vol. 106 (July 1996), pp. 996–1004. The EU countries excluded from the sample were Greece, Luxembourg, and Portugal.

⁵An expedited procedure could be used in the case of a deliberately planned deficit that the Council judged to be excessive.

⁶Of course, when a recession starts from a position of overheating, a balanced structural fiscal position would be asso-

ciated with an actual prerecession surplus. Additional calculations by the authors (not included in the published paper) show that, even when starting from an actual prerecession surplus corresponding in size to the cyclical budget component, the deficit still remained above 3 percent of GDP in the year after the recession in four out of the five cases of severe recession.

Box 4. Asymmetric Shocks: European Union and the United States

A natural benchmark for assessing the likely magnitude and effects of asymmetric shocks in the euro area is the experience of the United States in this regard. The United States and the EU are roughly comparable in terms of population, economic size as measured by GDP, and openness to trade. Since the United States has been a currency area for a long time, a comparison of the incidence of shocks between the United States and the EU should provide an indication of some of the challenges that the currency union in Europe may face.¹

One way of gauging the likely effects of asymmetric shocks in the euro area is to compare the correlation of output fluctuations across EU countries with that for U.S. regions. The *table* reports the correlation coefficients of output growth fluctuations between west Germany and other EU countries, and between the Mideast region of the United States and other U.S. regions, over 1964–90.² Fluctuations in output growth, in general, were more highly correlated across U.S. regions than across EU countries over the period. Nevertheless, in both cases there appears to have been a “core” (in the EU: west Germany, France, the Netherlands, Belgium, and Austria; in the United States: the Mideast, New England, Great Lakes, and Southeast states) where fluctuations in output growth tended to be relatively highly correlated.³ Output growth fluctuations in the “peripheral” regions were much less highly correlated with their respective anchor areas in both the United States and the EU. An interesting finding shown in the table is that even though the correlation coefficients of output growth fluctuations across the EU core are lower than those across the U.S. core, the differences are not very large: they are considerably smaller, in par-

Correlation Coefficient of Output Growth with Anchor Areas, 1964–90

U.S. states	
Mideast	1.00
New England	0.92
Great Lakes	0.87
Southeast	0.84
Plains	0.74
Far West	0.68
Southwest	0.34
Rocky Mountains	0.18
EU countries	
West Germany	1.00
Netherlands	0.77
France	0.71
Belgium	0.71
Austria	0.70
Denmark	0.61
Greece	0.61
Spain	0.54
Portugal	0.49
Ireland	0.48
Italy	0.47
Sweden	0.43
Finland	0.41
United Kingdom	0.19

Note: The correlation coefficients of output growth with anchor areas in the United States were found to be stable with respect to the choice of different time periods. The correlation coefficients in the EU “core” were also found to be stable when different time periods were chosen. However, the correlations of output growth between the anchor area and Finland, Sweden, and the United Kingdom were found to vary with the choice of time period. For instance, choosing 1973–90 as the reference period increased the correlation coefficients for the United Kingdom but reduced them significantly for Finland and Sweden. Nevertheless, these three countries continued to be part of the “periphery” irrespective of the time period chosen.

ticular, than the differences within the United States between the core and the periphery.

These results tend to be reinforced by analyses that decompose the aggregate disturbances into supply and demand shocks. Supply shocks refer to unanticipated disturbances, for instance, to technology or commodity prices, and tend to have relatively long-lasting effects on output and prices. Examples of supply shocks are the oil price increases of the 1970s. Demand shocks arise owing to such developments as unanticipated disturbances to business behavior, consumer preferences, or export demand, as well as significant changes in monetary and fiscal policies. Demand shocks tend, in general, to have less long-lasting effects on output, but more permanent effects on the level of prices. German unification, which changed the mix of monetary and fiscal policies in Europe, is an example of an asymmetric demand shock. Following the method used in the study by Bayoumi and Eichengreen,⁴

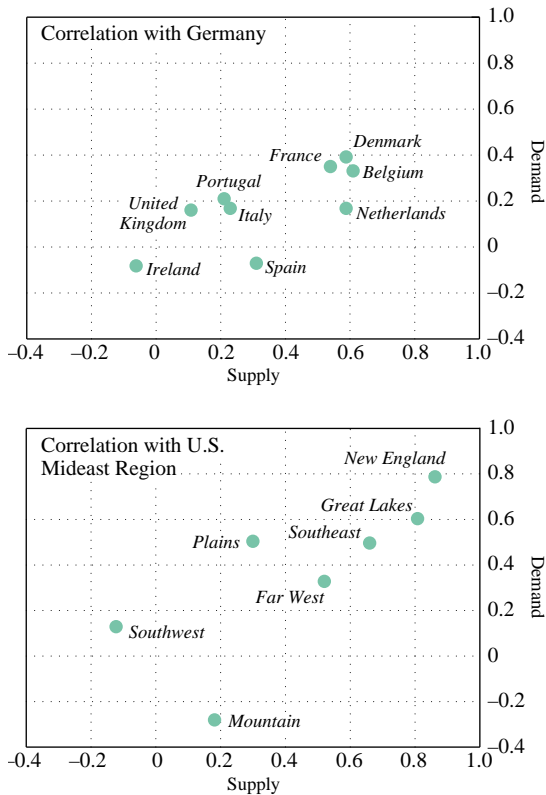
¹A number of studies have attempted to compare the incidence of shocks and adjustment mechanisms in the United States with those in the EU. See T. Bayoumi and B. Eichengreen, “Shocking Aspects of European Monetary Unification,” in *Adjustment and Growth in the European Monetary Union*, ed. by Francisco Torres and Francesco Giavazzi (Cambridge, England; New York: Cambridge University Press, 1993); and T. Bayoumi and E. Prasad, “Currency Unions, Economic Fluctuations and Adjustment: Some New Empirical Evidence,” *Staff Papers*, IMF (March 1997), pp. 36–58.

²West Germany offers a natural standard for comparison in the case of the EU for the period considered, being the largest economy, and having played the anchor role in the ERM. The Mideast region of the United States, being the largest economically, provides a corresponding standard for comparisons across the U.S. regions. The choice of 1990 as the end-point for the analysis has been motivated by the need to leave out the effects of German unification on the correlations of output fluctuations across the EU countries. Using the average rates of growth for the United States and the EU instead of those for the Mideast region and west Germany do not alter the results significantly. These issues are discussed in more detail in Bayoumi and Eichengreen, “Shocking Aspects.”

³The regional groupings of U.S. states are as defined by the Bureau of Economic Analysis of the U.S. Department of Commerce.

⁴Bayoumi and Eichengreen, “Shocking Aspects.”

Correlation of Demand and Supply Shocks with Anchor Areas



Source: T. Bayoumi and B. Eichengreen, "Shocking Aspects of European Monetary Unification," in *Adjustment and Growth in the European Monetary Union*, ed. by Francisco Torres and Francesco Giavazzi (Cambridge, England; New York: Cambridge University Press, 1993).

the figure plots the correlations of the fluctuations in output arising from demand and supply shocks of the different countries in the EU with those in Germany, and the corresponding correlations for the different regions of the United States with those in the Mideast states over 1962–88. Fluctuations in activity due to both supply and demand shocks tended to be more highly correlated across U.S. regions than across EU countries. However, as with aggregate disturbances, fluctuations in output due to supply shocks in the cores of both the United States and the EU were more highly correlated with their respective anchor areas than was the case with fluctuations in output due to supply shocks in the respective peripheral regions. The same

is true of fluctuations in activity arising from demand shocks.

The broad picture that emerges from this analysis is that the asymmetric effects of shocks were relatively more pronounced in the EU than in the United States during 1962–88. For the core group of EU countries, however, even though the asymmetric effects on output of shocks were larger than in the United States, the magnitudes of the differences do not appear to be substantial. However, as far as judgments about the economic viability of the euro area are concerned, past instances of asymmetric effects of shocks can provide only a partial guide to what the future holds. The introduction of the single currency will constitute a major regime change that will have significant implications for the pattern of likely shocks in the euro area. The incidence of asymmetric demand shocks, in particular, is likely to diminish after the single currency is introduced, because the countries in the euro area will not be able to pursue independent monetary policies, and exchange rate fluctuations within the area will be eliminated.

The impact that the regime change will have on the pattern of supply shocks is harder to predict. The introduction of the single currency may lead to more specialization in manufacturing among countries in the EU than exists currently. Consequently, there is some potential for an increase in the incidence of asymmetric supply shocks (as well as asymmetric demand shocks) due to this factor after the single currency is introduced.⁵ However, any such locational changes in manufacturing production are bound to take place only gradually. Moreover, research indicates that the United States is regionally more specialized than the EU only in the production of manufactures; there are no significant differences in regional specialization as far as the rest of the economy is concerned.⁶ In sum, while increased specialization in manufacturing may tend to increase asymmetric shocks in the euro area, it is likely to be offset by the reduction in asymmetric demand shocks implied by a unified monetary policy and tight constraints on national fiscal policies under EMU.

⁵Paul R. Krugman, *Geography and Trade* (Leuven, Belgium: Leuven University Press, 1991), points out that manufacturing production is currently more regionally specialized in the United States than in the EU and argues that the introduction of the single currency will lead to greater regional specialization as firms seek to maximize various network externalities. However, product market integration is unlikely to increase the incidence of asymmetric shocks if such integration is characterized by intra-industry rather than inter-industry specialization, and if the incidence of industry-specific shocks is more important than country-specific shocks. See the discussion in Alan C. Stockman, "Sectoral and National Aggregate Disturbances to Industrial Output in Seven European Countries," *Journal of Monetary Economics*, Vol. 21 (May 1988), pp. 387–409.

⁶See Bayoumi and Prasad, "Currency Unions."

Box 5. Currency Boards

Currency board arrangements (CBAs) have been adopted in a number of countries as a means of enforcing financial discipline and stabilizing economies, especially from initial circumstances of financial instability. Their ability to help restore confidence in financial markets and withstand subsequent financial market pressures has long been demonstrated. Djibouti has had a currency board since 1949, Brunei Darussalam since 1967, and Hong Kong, China restored its currency board in 1983. Subsequently, the Argentine Convertibility Law applied the same principles of monetary control under the fixed exchange rate system it introduced in 1991, showing that CBAs could also be used to halt hyperinflations and maintain low inflation even in relatively large economies. Shortly thereafter, two more CBAs were introduced, in the transition economies of Estonia and Lithuania. Most recently, a CBA has been established in Bulgaria and one is scheduled to begin operation soon in Bosnia and Herzegovina.¹

What is a CBA? A CBA represents an unequivocal commitment to supply or redeem, without limit, monetary liabilities of the central bank *qua* currency board at a fixed exchange rate. Moreover, these are the *only* terms under which monetary liabilities will be exchanged. This means that currency boards, in their pure form, cannot extend credit to the government, the banking system, or anyone else. Under these conditions, even short-term interest rates are purely market determined, linked to interest rates in the country to whose currency the domestic currency is anchored, and completely independent of the will of the monetary authorities. The commitment to exchange monetary liabilities for foreign currency at a fixed exchange rate requires that the currency board have sufficient foreign exchange to honor this commitment. This ideally means that its foreign reserves at least equal the value of its monetary liabilities. Excess reserves are only necessary in CBA arrangements where the central banks wishes to pursue some, albeit limited, policy functions.

What are the preconditions for the successful introduction of a CBA? First, the prohibition on central bank lending to the government requires considerable fiscal discipline. While some financing may be available to the government domestically, and some externally, both sources are subject to constraints (crowding out, external debt sustainability). Given these financing constraints, countries with currency boards must therefore commit themselves to appropriately tight fiscal positions over the medium term. Second, the limited resources available for the currency board to act as lender of last resort means that the banking system must be robust and able to function without routine central bank credits. Third, the commitment to the exchange rate peg must be seen to be durable. This requires that wages and prices be flexible and labor markets relatively free of distortions.

What makes CBAs as robust as they have been in a number of countries? CBAs offer the strongest form of exchange rate peg that is possible short of full currency union. Their strength derives from a number of factors, including the preconditions listed above, but most of all from the free operation of market forces in determining interest rates. In particular, they avoid the “too little, too late” trap that policymakers can fall into when determining interest rates in a discretionary manner. Their administrative and operational simplicity has also been an important feature in some small open economies. The credibility of CBAs comes from the governments’ commitment to the rules of the game in determining the issuance of money, and from the framework they provide that fosters fiscal discipline and structural reform. It also comes from the fact that a CBA entails a much higher cost of abandoning a fixed parity than is the case for fixed-but-adjustable exchange rate arrangements. In most existing CBAs, the exchange rate is set by law, making changes to the exchange rate very costly for governments.

What are the problems that CBAs can encounter? The cast iron convertibility of domestic currency into foreign currency comes at the expense of the convertibility of commercial bank deposits into cash that central banks provide as lenders of last resort. This is because a currency board can serve as lender of last resort only to the extent that it has external reserves exceeding what is required to back the monetary base. Its capacity to support commercial banks is therefore bounded, so that such support must be on stricter terms than nor-

¹For a discussion of recent CBAs see Adam Bennett, “Currency Boards: Issues and Experiences,” *Finance & Development*, Vol. 32 (September 1995); and Tomás J.T. Baliño and Charles Enoch, *Currency Board Arrangements: Issues and Experiences*, IMF Occasional Paper No. 151 (August 1997).

mal.² The reliance of CBAs on interest rates to equilibrate financial markets, meanwhile, forces banks to assume an important share of the burden of adjustment, and the absence of central bank monetary operations to smooth out very short-term interest rate volatility implies that banks must be able to weather such volatility. All this means that banking supervision must be even more rigorous than usual. Bank collapses have occurred in some CBAs (Argentina³ and Lithuania in 1995, Estonia in 1992 and 1994, and Hong Kong, China in 1986), but all were handled within the constraints established by their respective CBAs. In Bulgaria, to forestall another bank crisis in the context of its CBA, troubled banks were subject to restructuring prior to the CBA, and banking supervision was strengthened.

What are the benefits of CBAs? CBAs confer considerable credibility on fixed exchange rate regimes. This credibility is most noticeable in the narrowing of interest rate differentials vis-à-vis the anchor currency. Thus, interest rates in Argentina declined from 12½ percent a month just before the introduction of the currency board in March 1991 to 1½ percent the following month. In Bulgaria, interest rates declined from over 18 percent a month before the announcement, in March 1997, that a CBA was to be implemented on July 1, to under ½ of 1 percent a month in mid-July. Interest rates on (credit-risk-free) instruments in Estonia have closely tracked those of the peg currency. In Hong Kong, China, interest rates have generally oscillated around those of the peg currency (the U.S. dollar), reflecting their role as automatic stabilizer—high when money demand was high or markets were subject to disturbances (such as after the Mexico crisis) and low when conditions were softer.

In their role as nominal anchors, CBAs help deliver price stability. Structural changes and other adjustments in the economy, however, can sometimes result in inflation remaining for a time higher than in the country whose currency provides the peg. For example, faster productivity

growth in the tradables sector than in nontradables, which tends to be a feature of an economy that is growing relatively rapidly, may mean that faster overall inflation than in the anchor country, and an associated real appreciation of the domestic currency in terms of overall price indices, implies no loss of international competitiveness in terms of traded goods prices. This helps explain why inflation in Hong Kong, China has been persistently higher than in the United States, host to the peg currency, without giving rise to difficulties for the former in terms of competitiveness. Inflation in Estonia and Lithuania also remains higher than in Germany and the United States, the respective reserve currency countries. This partly reflects the phasing of utility price adjustments, and the initial undervaluation of the Estonian kroon and Lithuanian litas and their subsequent real appreciation through domestic price increases. Sometimes, however, inflation can simply reflect the strength of domestic demand, unleashed by the confidence-boosting effects of the (often long-awaited) stabilization. Thus Argentina's inflation during 1991–94, while dramatically lower than before its CBA, remained well above international levels partly for this reason. Here there are dangers for competitiveness, as wages and prices may get bid up to unsustainable levels. To avert these risks, fiscal policy needs to take a more active role in cooling demand, and labor markets must be made as flexible as possible.

Given the stringent preconditions and attendant risks, currency boards are obviously not appropriate for all countries or in all circumstances. CBAs can evolve, with the introduction (or reintroduction) of instruments and facilities more normal for conventional central banking arrangements. Thus, the currency board arrangements of Hong Kong, China and Argentina already allow for limited interest-rate-smoothing open market operations, and the Hong Kong Monetary Authority now effectively applies a band on overnight interest rates. CBAs could evolve to the point where countries could one day choose to exit them in favor of other arrangements, including greater exchange rate flexibility. For CBAs to deliver their promise of credibility and financial stability, however, it is essential that they be seen to represent a durable commitment. Steps toward evolution, or toward exit, should therefore be taken only after the CBA has been in force for a sustained period of time and has done its job, on the condition that the authorities enjoy a high degree of credibility in their commitment to financial discipline, and where such steps would clearly represent an advantage to the country concerned.

²Another drawback of CBAs sometimes noted is the loss of seigniorage from having central bank money backed, completely in pure CBAs, by foreign exchange reserves. Much of this loss, however, can be offset by investing the foreign exchange reserves in interest-bearing liquid foreign assets.

³Subsequent to the crisis, the Argentine authorities set up a credit facility with foreign commercial banks to have available "lender-of-last-resort" funds in the event of a financial crisis.

Box 6. Dollarization

Dollarization, the holding by residents of a significant share of their assets in foreign-currency-denominated form, is a common feature of developing and transition economies.¹ It is a response to economic instability and high inflation, and to the desire of domestic residents to diversify their asset portfolios. In countries experiencing high inflation dollarization is typically quite widespread, as the public seeks protection from the cost of holding assets denominated in domestic currency. But remarkably, the increase in dollarization in some Latin American and Asian countries has continued and even accelerated in recent years following successful stabilization.²

To understand this development, it is useful to distinguish between two motives for holding foreign currency assets: currency substitution and asset substitution. Currency substitution occurs when assets denominated in foreign currency are used as means of payment, while asset substitution occurs when assets denominated in foreign currency serve as stores of value. Currency substitution typically arises during high inflation, when the cost of holding domestic currency for transactions purposes is high. Asset substitution results from portfolio allocation decisions and reflects the relative risk and return characteristics of domestic and foreign assets. In many developing countries, assets denominated in foreign currency have often provided residents with the opportunity to insure against major domestic macroeconomic risks.

Most studies of dollarization focus on foreign currency deposits (FCD) in the domestic banking system, data for which are readily available. This focus can be misleading, however. Foreign currency in circulation, although largely unmeasured, is a major component of dollarization in some countries; indeed, willingness to hold foreign currency deposits may at times be inversely correlated with the use of foreign currency. Some data are available on cross-border deposits, that is, deposits of domestic residents at banks abroad. Such deposits do not imply dollarization per se, because they are located abroad, but they are relevant for the analysis because they are close substitutes for foreign currency deposits.

Foreign currency deposits constitute a significant share of broad money in a number of developing countries. Indeed, shares of 15–20 percent are common in countries where residents are allowed to maintain such deposits. On account of their large size, persistence, and volatility, holdings of foreign currency deposits in Latin America and the transition economies of eastern Europe, the Baltics, Russia, and the former Soviet Union are of particular interest.

In the transition economies, with the advent of market reforms in the early 1990s, restrictions on foreign currency deposits were generally eased. As a result, FCD ratios rose rapidly, reaching peaks of 30–60 percent in most transition economies during 1990–95. High inflation, neg-

ative real interest rates on assets denominated in domestic currency, and sharp depreciations that increased the domestic currency value of foreign currency deposits contributed to the rise. Following price stabilization, FCD ratios declined sharply in a number of countries, including Armenia, Estonia, and Poland. Valuation effects associated with substantial real appreciations, which more than offset rises in the dollar volumes of foreign currency deposits, also contributed to the decline in FCD ratios in some countries. FCD ratios remained high in some other countries, such as Latvia and Georgia. Among Latin American countries, although dollarization is closely linked to histories of high inflation and financial instability, FCD ratios increased sharply in some cases after inflation had been reduced in the late 1980s and early 1990s. One possible explanation is “hysteresis” or some form of nonreversibility in the process of dollarization. Thus, for example, changing uses and practices in the settlement of transactions may be slow processes that involve (informal) institutional changes and take place only when significant benefits are gained by switching currencies.

While hysteresis may explain the persistence of dollarization, it cannot explain its steady rise after inflation moderated. The surge in capital inflows to developing countries in the 1990s offers another explanation. It suggests that for several Latin American countries increases in foreign currency deposits (in dollar terms) in the 1990s coincided with declines in the holdings of cross-border deposits, including the short-lived reversal in Mexico and Argentina at the time of the Mexican peso crisis (*see figure*). The increases in foreign currency deposits may simply have reflected shifts in residents’ portfolios from cross-border deposits.³ The increase in dollarization may thus stem from an increase in confidence in the domestic economy and banking system (although not in the domestic currency), rather than a persistent lack of credibility. This could be part of the remonetization of the economy. Since the persistent increase in the FCD ratio seems to be related to shifts from cross-border deposits, no net increase in overall assets denominated in foreign currency may be involved. In fact, a more comprehensive measure of dollarization, inclusive of cash and cross-border deposits, might show a declining trend.

Dollarization introduces additional complications into the choice of exchange rate regime. A key implication of *currency substitution* is that exchange rates will tend to be more volatile. One reason is that there may be frequent and unexpected shifts in the use of domestic and foreign

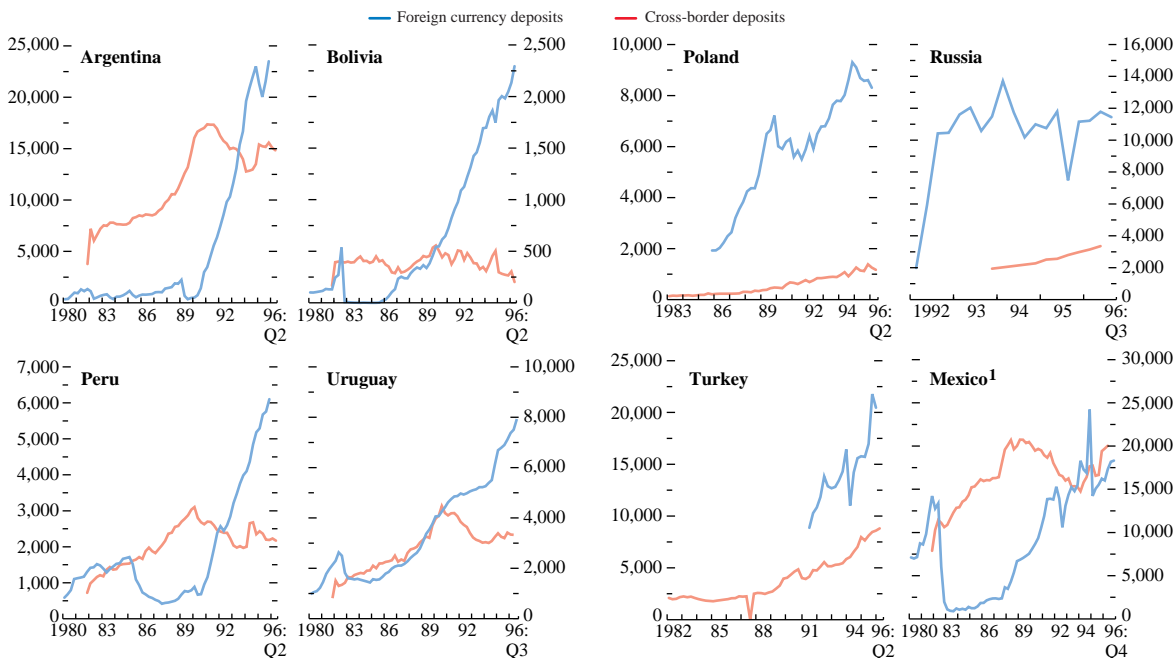
¹The foreign currency most commonly held is the U.S. dollar, but “dollarization” refers here to the use of any foreign currency.

²See Andrew Berg, Eduardo Borensztein, and Zhaouhui Chen, “Dollarization, Exchange Rates, and Monetary Policy,” IMF Working Paper (forthcoming).

³While the decline in cross-border deposits is apparently smaller than the increase in foreign currency deposits in absolute terms, three points should be noted. First, the actual stock of cross-border deposits is most likely underestimated, which means that the actual decline in cross-border deposits in dollar terms was probably higher. Second, cross-border deposits displayed a strong upward trend until the beginning of the period of capital inflows; compared with that trend, the relative decline in cross-border deposits is much larger. Third, there may have been shifts from holdings of foreign currency to foreign currency deposits.

Foreign Currency and Cross-Border Deposits

(In millions of U.S. dollars)



Sources: Bank for International Settlements; central bank bulletins; and IMF staff estimates.

¹The sharp fall in foreign currency deposits in 1982 reflects a forced conversion into peso deposits.

money for transactions. Another is that demand for the domestic-currency-denominated component of the money stock will be more sensitive to changes in its expected opportunity cost. In other words, the interest elasticity of domestic money demand will be higher when there is significant currency substitution.

In a floating exchange rate regime, this higher elasticity and instability of money demand would likely result in greater exchange rate volatility. This strengthens the argument for the adoption of a pegged exchange rate when currency substitution is extensive. Nevertheless, the broader considerations that guide the choice of exchange rate system still apply. In particular, if shocks originate mostly in money markets, then fixed exchange rates provide more stability, but if shocks are mostly real in nature, floating rates are superior in stabilizing output.

There is a clear case for fixing the exchange rate when a highly dollarized economy is stabilizing from very high inflation or hyperinflation. Currency substitution is likely to be important, and monetary shocks are likely to predominate, especially as successful stabilization may result in a large but unpredictable increase in the demand for domestic currency. Moreover, during hyperinflation, foreign currency may assume the role of unit of account,

and the exchange rate may also serve as an approximate measure of the price level, making it a powerful guide for expectations in the transition to a low-inflation equilibrium. Argentina in 1991 is an example of a country where an exchange rate anchor helped to stop hyperinflation in the context of extensive currency substitution.

Dollarization in the sense of *asset substitution* also has implications for the choice of an exchange rate regime. The most important may be that the availability of foreign currency deposits in domestic banks increases capital mobility, as the public can potentially shift between foreign currency deposits held with domestic banks and abroad, as well as between foreign-currency- and domestic-currency-denominated deposits held in domestic banks. These various assets are likely to be close substitutes for savers, which strengthens the link between interest rates on dollar deposits at home, international dollar interest rates, and domestic currency interest rates. This would limit the control that the central bank can exert on monetary conditions, such as the level of interest rates on domestic currency. In contrast to the implications of currency substitution, dollarization in the sense of asset substitution may thus increase the usefulness of a flexible exchange rate arrangement in enhancing monetary autonomy.

Box 7. Financial Sector Problems and Monetary Policy in Countries in Transition

In recent years, countries in transition have been confronted with a range of financial sector problems, which have had important implications for the conduct of monetary policy. This may be illustrated by an overview of selected country experiences during the past three years. The intensity of the financial sector problems experienced has varied quite widely. In a number of countries, problems have been concentrated in individual institutions with no significant repercussions for the wider financial system and monetary policy. Russia, other countries of the former Soviet Union (excluding the Baltic countries), and Mongolia have been facing systemic banking sector weaknesses that have constrained monetary policy, but these countries have avoided large-scale banking crises. In the Baltics, however, bank failures did develop into full-scale banking crises and strongly affected the conduct of monetary policy. In southeastern Europe, financial sector problems were a key element of widespread macroeconomic instability that developed in 1996 and peaked in early 1997 in Bulgaria and Romania, and also exacerbated the economic and financial breakdown in Albania in early 1997.

Countries that have been able to avoid contagion effects within their financial systems include the Czech Republic, Estonia, Hungary, and the former Yugoslav Republic of Macedonia. In the summer of 1996, banking problems emerged in the Czech Republic in connection with the failure of a small bank and spillover effects on a medium-sized bank. The two banks, together with some other small banks, were put under temporary forced administration by the national bank, which also arranged for liquidity credits. The problems led the national bank to introduce a comprehensive consolidation program for small banks. The country's four major banks were unaffected. In March 1995, Estonia's second largest bank, which accounted for 15 percent of total banking system assets at the end of 1993, was closed following protracted liquidity and solvency problems. None of the bank's liquidity problems spread through the payments system or the interbank money market. The conduct of monetary policy was not adversely affected, but Bank of Estonia support, which reached 6 percent of base money, was largely unrecoverable. In March 1997, the National Bank of Hungary reacted to a run on the country's second largest bank for small depositors by providing a temporary exemption from reserve requirements; the run quickly subsided and most deposits returned to the banking system. Also in the spring of 1997, the operations of the largest saving house in the former Yugoslav Republic of Macedonia were suspended when sizable unreported deposits were discovered. Some banks suffered modest net withdrawals of deposits and there were limited capital outflows following the suspension, but there were no further significant effects on economic or financial activity.

In Russia, other countries of the former Soviet Union (excluding the Baltic countries), and Mongolia, financial sector problems have at no time reached the stage of crisis. However, the overall financial situation has generally remained fragile, with large fractions of nonperforming loans, and banking sector difficulties have constrained the conduct of monetary policy in several countries, as the following examples illustrate.¹

In Russia, weaknesses in segments of the banking system and concerns about counterparty soundness contributed to a temporary collapse of the interbank market in August 1995, requiring the central bank to inject liquidity temporarily through large-scale purchases of treasury bills.² In Kazakhstan, a number of large banks ran into serious difficulties in 1996; the fourth largest bank was closed in October, and two other major banks were put under conservatorship and merged. Reflecting the loss of confidence in the banking sector, the demand for bank deposits, particularly foreign currency deposits, declined as money holders shifted into cash. During 1996, the income velocity of money increased by about 5 percent, despite a steady decline in inflation, and the currency-to-deposit ratio increased by around 26 percent; banking system credit to the private sector declined as banks preferred to hold excess reserves rather than to extend new lending. In the Kyrgyz Republic, amid rising concerns about the solvency of the banking system in 1995, supervision was strengthened and a comprehensive restructuring plan for the financial sector was introduced, resulting in the closure of the two largest, formerly specialized, banks and a number of smaller banks. As was the case in Kazakhstan, these banking sector problems resulted in an increase in the currency-to-deposit ratio and a drop in bank lending to the private sector in real terms. At the same time, the National Bank of the Kyrgyz Republic created a special facility to provide liquidity to problem banks, reducing its ability to use indirect instruments.

In Mongolia, commercial banks, burdened with large nonperforming loans, became increasingly illiquid in 1996 and confidence in the banking system waned. The income velocity of money increased by almost 25 percent, and the share of currency in broad money rose from 25

¹In Russia and other countries of the former Soviet Union (excluding the Baltic countries), the bulk of bad loans is typically concentrated in the five largest banks, often the formerly state-owned specialized banks, which continue to account for a major share of total banking system assets (on average around 70 percent).

²Temporary liquidity injections are usually associated with repurchase agreements rather than outright purchases of treasury bills, since the former are self-reversing. However, repurchase agreements were introduced in Russia only in October 1996.

percent to 33 percent during the year. The authorities first adopted a policy of supporting weak banks by providing them with ready access to central bank credit. Net credit to banks doubled, and much of the credit was provided on concessional terms outside the regular central bank lending facilities. Because of the relaxation of monetary policy that this support entailed, inflation started to accelerate and the exchange rate rapidly depreciated. In late 1996, the authorities decided to end the policy of open-ended accommodation and began implementing a comprehensive bank-restructuring strategy, including the closure of two large insolvent banks and the establishment of an asset-recovery agency. This strategy has made it possible for monetary policy to focus on macroeconomic stabilization rather than being diverted by support to banks.

Growing distress in the Latvian and Lithuanian banking systems turned into full-fledged crises in 1995. The crisis in Latvia erupted in April after the failure of some banks to complete audited reports for 1994 and the subsequent closure of the country's largest commercial bank. The crisis damaged public confidence in the banking sector, with total deposits, excluding deposits blocked in insolvent institutions, falling by 35 percent in the first half of 1995. The banking crisis induced large capital outflows and forced the Bank of Latvia to intervene in the foreign exchange market. The Lithuanian crisis was triggered in December 1995 by the publication of on-site inspection results for the largest and third largest private banks, and the subsequent suspension of these banks' operations. Immediately following the closure of these banks, widespread and steady deposit withdrawals took place from the remaining banks, with large outflows of foreign exchange through the currency board. While the banking crises in Latvia and Lithuania did not lead to widespread macroeconomic instability, they increased the volatility of the demand for money and the money multiplier, thereby complicating the conduct of monetary policy, and reversed much of the financial deepening achieved in the early years of the transition. The deflationary impact of the Baltic banking crises was less severe than suggested by the sharp contractions in domestic liquidity, mostly because of the still rather limited role of bank intermediation before the crises and the high degree of dollarization. However, in both countries, the money multiplier remains lower and the currency-to-deposit ratio higher than before the crisis, and bank lending to the private sector as a share of total credit has not recovered, with banks preferring to hold less risky government securities.³

In Bulgaria, bank liquidity problems emerged in late 1995 in the wake of public recognition that several banks had become insolvent as a result of the accumulation of bad loans. By that time, the net worth of the banking system was negative to the tune of about 10 percent of GDP, with 70 percent of loans classified as nonperforming and 25 percent as uncollectible. Confidence in the banking system started to decline, it weakened further with the subsequent closure of several banks, and toward mid-1996 there was a run on the entire banking system,⁴ coupled with a simultaneous run on the currency. The crisis forced the Bulgarian National Bank to provide substantial liquidity support to the state banks under greatest pressure, and to initiate liquidation procedures against an additional number of banks. By the middle of 1997, 4 of the original 10 state banks and 14 of the original domestic private banks had been closed; these banks had accounted for around one-third of total deposits before the crisis. In Romania, faced with a surge in nonperforming loans, the national bank, after having failed to take timely regulatory actions, was forced in 1996 to act as lender of last resort and extend large emergency credits to two ailing private banks. The liquidity support to these banks was an important contributor to the bank's loss of control over reserve money in the second half of 1996 and contributed to a renewed acceleration in inflation toward the end of the year. Finally, in Albania, "pyramid" investment schemes attracted funds estimated at up to 50 percent of GDP during 1994–96 by exploiting loopholes in the existing legal and regulatory framework. The schemes collapsed in early 1997, as several of the larger companies involved were unable to continue attracting enough new deposits to cover interest payments as interest rates had been driven up to very high levels.

These experiences show that financial sector problems have remained widespread among the transition countries, and they illustrate one of their main negative consequences, a reduction in the effectiveness of monetary policy. The experiences also demonstrate that policies to support insolvent banks by extending cheap central bank credit are counterproductive and typically result in higher inflation and exchange rate depreciation. They show too how important it is that transition countries maintain efforts to reform and strengthen their financial systems, in particular when they still suffer from systemic stress that may develop into liquidity crises.

³For a detailed analysis of these issues, see Marta de Castello Branco, Alfred Kammer, and Effie Psalida, "Financial Sector Reform and Banking Crises in the Baltic Countries," IMF Working Paper 96/134 (December 1996).

⁴Between December 1995 and December 1996, lev deposits as a percentage of GDP were halved, while foreign currency deposit withdrawals totaled almost \$900 million, or about 40 percent of deposits outstanding.

Box 8. Relative Price Adjustment and Price Convergence in Transition Countries

The structure of relative prices in the transition economies at the onset of the transformation was vastly different from that in the advanced market economies. Overall price levels, as measured in a common currency, were also widely divergent from the range of price levels prevailing among advanced economies. These differences in relative prices and price levels reflected two main factors. First, prices were heavily distorted under the system of central planning. Second, even undistorted prices would have been different as real per capita income levels in the transition economies were significantly lower than those in advanced economies. Both price structures and national price levels are highly correlated with purchasing-power-parity-adjusted income per capita.¹ For example, estimates by the World Bank indicate that in 1995, the price level in the United States was about three times higher than that prevailing on average in developing countries, in U.S. dollar terms. Price comparisons between transition economies and market economies therefore have to take into account differences in real GDP per capita.

In the course of the transition, prices have started to converge to market economy levels in different dimensions.² The structure of domestic prices has moved closer to that prevailing in advanced market economies. Overall price levels have started to converge toward market economy levels as well. Moreover, prices have been converging across regions and alternative distribution channels within countries in transition, while overall price levels have been coming closer together across these countries. The adjustment of prices has proceeded in two broad phases following initial price liberalization: first, prices of tradable goods moved toward those on international markets; more recently, services prices have been brought more closely into line with market economy comparators, and price level convergence has gained momentum.

In most transition countries, relative price adjustment started in earnest with the liberalization of a substantial proportion of prices at the outset of the transformation process. This allowed the prices of a large range of consumer items to become market-determined, often with the exception of staples and many services, particularly housing and utilities. These measures translated into a surge in the overall price level that was typically many times larger than prior and subsequent price level increases and was related to the size of the initial monetary overhang. At the same time, reflecting an even more pronounced decline in the exchange value of the national currency, price levels in many transition countries, expressed in a common currency, fell farther below market economy comparators. The further price level divergence mainly reflected initial undervaluation of the domestic

currency following devaluation in the context of a stabilization program or the introduction of a new currency.

Following the initial wave of price liberalization and the introduction of market-based exchange rates, the forces of international competition started to drive the prices of tradables toward those prevailing on international markets. Within a few years, a substantial degree of convergence of tradables prices was achieved. For example, tax-adjusted gasoline prices in the Czech and Slovak Republics and in Hungary had approached Austrian levels by 1993.³ Relative price changes during the early years of the transformation also reflected the piecemeal liberalization of prices that had not been freed initially and the periodical adjustment of prices that remained controlled, primarily prices of services. On the whole, administered prices were often adjusted by less than was needed to keep up with the increases in market-based prices. As a result, prices of services, which typically were the most distorted prices under central planning, deviated even further from market levels during this period. With adjustments in tradables prices being partly offset by lagging services prices, progress in price level convergence was limited. Thus in 1993, price levels in south-eastern Europe, the Baltics, Russia, and other countries of the former Soviet Union were 20 percent or less of the Austrian benchmark level.

In more recent years, relative price adjustment has continued at a slower pace, reflecting the convergence of price structures that had occurred earlier. At the same time, the nature of the adjustment process has changed, with increases in services prices, administered prices for government-provided services in particular, now being the main driving force. The convergence of overall price levels toward those prevailing in comparable market economies has also gained momentum. The unweighted average consumer price level ratio vis-à-vis Austria for a sample of 15 transition countries rose from one-fourth in 1993 to over one-third in 1996, with particularly rapid increases in the Baltics, Russia, and Ukraine.

Adjustments of relative prices can affect the overall inflationary process. Such adjustments will lead to higher inflation in the presence of downward price rigidities or other frictions in relative price adjustment and loose monetary policy. An initial price increase for a particular good or service can have a large inflationary impact if the relative price increase involved is subsequently partly undone by upward adjustments in other prices, provided these adjustments are accommodated by money growth. Relative price adjustments can contribute to overall inflation in other ways too. For instance, relative price changes may increase uncertainty. In the presence of adjustment ("menu") costs, price setters (firms and, in the case of administered prices, government agencies) will change prices only at certain intervals in response to changes in the economic environment. More uncertainty then reduces

¹For evidence on the relationship between price structures and income levels, see Daniel A. Nuxoll, "The Convergence of Price Structures and Economic Growth" (unpublished; Blacksburg: Virginia Polytechnic Institute, 1996).

²See the more detailed analysis in Vincent Koen and Paula De Masi, "Prices in the Transition: Ten Stylized Facts," *Staff Studies for the World Economic Outlook* (IMF, forthcoming).

³Austria is the comparator country in the price level comparisons carried out by the Organization for Economic Cooperation and Development.

the optimal interval between price changes. More frequent price changes in turn make monetary expansion translate more fully and more rapidly into overall price increases.

An analysis of a panel of 21 transition economies during 1991–95 indicates that relative price variability indeed had a statistically significant and fairly important effect on overall inflation.⁴ The contribution varied by region and over the sample period and depended on the extent to which relative price adjustments were accompanied by nominal wage increases and accommodated by money growth. Causality is hard to establish, but a more detailed study of three Baltic countries during 1993–96 indicates that causality ran from relative price adjustment to inflation.⁵

The process of relative price adjustment and price level convergence also has implications for the behavior of real exchange rates. Real exchange rates can be defined in a number of ways. Real exchange rate changes are sometimes calculated as changes in the ratio of the domestic price of nontraded goods to the domestic price of traded goods or as changes in the ratio of consumer prices in the home country to consumer prices in its trading partners, expressed in a common currency. According to either definition, the price adjustments in transition countries entail real appreciation of the domestic currency. The recent rise in the relative price of services constitutes an increase in the relative price of nontraded goods, while the convergence of overall price levels represents an increase in consumer prices relative to trading partners. A gradual real exchange rate appreciation that reflects price convergence during transition is thus an equilibrium adjustment phenomenon, which does not involve an unwarranted loss of competitiveness.

The price adjustment process and the associated appreciation of the real exchange rate are expected to continue in the years ahead. While the distortions inherited from central planning have been mostly eliminated and the initial price level gaps between transition countries and market economies with comparable levels of real per capita income have been largely closed, substantial gaps remain vis-à-vis the advanced economies (*see figure*). Price structures may be expected to become more similar and price levels to converge as productivity improvements narrow income differentials. Full convergence of real income and price levels on those in advanced economies can be expected only in the long run, however. At the same time, the prices of many capital-intensive services in transition countries (housing, utilities, transportation) are still below cost-recovery levels and will need to adjust further in relative terms. According to the so-called cost-recovery hypothesis, this adjustment need not take place in the short run.⁶ The production of services in transition countries is

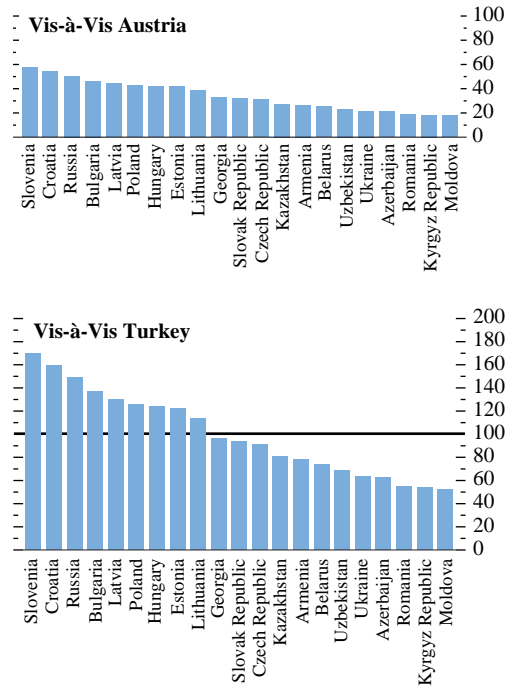
⁴See Sharmini Coorey, Mauro Mecagni, and Erik Offerdal, “Disinflation in Transition Economies: The Role of Relative Price Adjustment,” IMF Working Paper 96/138 (December 1996).

⁵See Krajnyák and Klingens, “Price Adjustment and Inflation in the Baltics, 1993–96,” IMF Working Paper (forthcoming).

⁶See Basil Zavoico, “A Brief Note on the Inflationary Process in Transition Economies” (unpublished; IMF, 1995). The cost-

Countries in Transition: Overall Price Level Gaps, 1996

(In percent)



Source: Vincent Koen and Paula De Masi, “Prices in the Transition: Ten Stylized Facts,” *Staff Studies for the World Economic Outlook* (IMF, forthcoming).

based on an inherited capital stock that appears to be “too large” when compared with other countries that have similar income levels, and there is room for downsizing this capital stock. Services prices will therefore have to rise only gradually to cover maintenance cost and eventually new investment while the excess capital stock is being consumed. To the extent the cost-recovery hypothesis applies, the price level in transition countries will remain lower than in market economies with similar real per capita income but may be expected to rise more rapidly as real income in both groups of countries converges on that in the advanced economies.

recovery effect has to be distinguished from the so-called Balassa-Samuelson effect, according to which the relative price of nontradable services will gradually increase as real per capita income rises because of slower trend productivity growth in the production of services than in that of tradable commodities.

Box 9. Hong Kong, China: Economic Linkages and Institutional Arrangements

Since the start of China's reform process in 1978, economic integration between Hong Kong, China and China has advanced steadily with the development of links in production, investment, trade, and financial flows. The increased integration has coincided with dramatic structural change of the Hong Kong, China economy from one that was based on manufacturing to one dominated by the services sector.

Investment from Hong Kong, China accounts for two-thirds of *foreign direct investment* in China since 1979 and provides employment for an estimated 4–5 million workers in southern China. As production facilities have relocated to China, cyclical fluctuations in Hong Kong, China's GDP and China's industrial production have become increasingly correlated.

Bilateral *trade flows* have also expanded steadily. Around 55 percent of Hong Kong, China's reexports are of Chinese origin and about 35 percent are destined to China. One-fourth of Hong Kong, China's domestic exports in recent years have gone to China, although only 6 percent of retained imports have originated in China.

While banking and financial links between the two economies have developed, the degree of financial integration remains limited. The claims on and liabilities to China of the banking system of Hong Kong, China account for a small share of total assets and liabilities.

The *constitutional framework* for the Hong Kong Special Administrative Region (HKSAR) following the

transition of sovereignty on July 1, 1997 is set out in the Sino-British Joint Declaration (1984) and the Basic Law of the HKSAR of the People's Republic of China (1990). The framework stipulates that the HKSAR's capitalist system and way of life shall remain unchanged for 50 years after July 1, based on the concept of "one country, two systems." During this period, the HKSAR is to remain autonomous in all but two areas—foreign affairs and defense. Key provisions of the constitutional framework with respect to the *economic and legal system* are:

- The rights of *private ownership* of property and investment shall be protected by the law.
- The HKSAR will enjoy freedom from taxation by the central government of China and will have an *independent tax system* and its own tax laws.
- The *monetary systems* of China and Hong Kong, China will remain separate, with two currencies and two mutually independent monetary authorities.
- The *Hong Kong dollar will remain the legal tender* and a freely convertible currency fully backed by foreign exchange.
- The HKSAR shall also retain autonomy in its *external economic relations*, including the status of a free port and a tariff-free zone, separate customs territory, and participation—in an appropriate capacity—in international organizations.

Box 10. Scenario Assumptions

Scenario 1: EMU as a Catalyst for Change

- Policies are introduced that reduce both the persistence of unemployment and inflation inertia, partly by increasing the responsiveness of inflation to unemployment in the short term. More specifically, inflation is modeled as a nonlinear function of the deviation of unemployment from its natural rate and incorporates a weighted average of lagged and expected future inflation as well. Increased labor market flexibility is captured through an increase in the parameter on unemployment by around one-third of the level currently observed. In addition, an increase in the weight of expected inflation captures a reduction in the inertia of the inflation process.¹
- As a result, from 2000 onward, structural unemployment is reduced by 0.125 of 1 percentage point annually, stabilizing in 2007 at 2 percentage points below the baseline.
- Government expenditures are cut by $\frac{1}{2}$ of 1 percent of GDP annually during 2000–2003 and kept constant at 2 percentage points below the baseline from 2003 onward. The average rate of taxation is cut by $\frac{1}{2}$ of 1 percent of GDP during 2000–2010 and the target level of debt is reduced by 10 percent of GDP.
- Total factor productivity grows by $\frac{1}{4}$ of 1 percent a year faster than in the baseline scenario in 2000–2001 and remains at $\frac{1}{2}$ of 1 percent above the baseline thereafter.

Scenario 2: EMU Without Structural Reforms

- The natural rate of unemployment increases by $\frac{1}{4}$ of 1 percentage point a year from 2000 until 2007 when it stabilizes at 2 percentage points higher than the baseline value.
- Government expenditure rises by $\frac{1}{4}$ of 1 percent of GDP a year during 2000–2003, after which it stabilizes at 1 percent of GDP above the baseline.
- The target level of debt is raised by 10 percent of GDP from 2000 onward.
- The euro's risk premium rises by 10 basis points annually during 2000–2003; after 2003, the risk premium is kept constant at 40 basis points.

¹For details, see Peter B. Clark and Douglas Laxton, "Phillips Curves, Phillips Lines and the Unemployment Costs of Overheating," IMF Working Paper 97/17 (February 1996); and Guy Debelle and Douglas Laxton, "Is the Phillips Curve Really a Curve? Some Evidence for Canada, the United Kingdom and the United States," *Staff Papers*, IMF, Vol. 44 (June 1997), pp. 249–82.