Board of Governors of the Federal Reserve System

International Finance Discussion Papers

Number 421

January 1992

GERMAN UNIFICATION AND THE EUROPEAN MONETARY SYSTEM: A QUANTITATIVE ANALYSIS

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ABSTRACT

This paper uses a macroeconomic model with rational expectations to analyze issues related to German unification. A principal focus of the paper is the effect of unification on member countries of the European Monetary System. Under certain conditions, German unification has a contractionary effect on other EMS countries. We explore the implications for EMS and other countries of alternative German fiscal and monetary policies.

German Unification and the European Monetary System: a Quantitative Analysis

Gwyn Adams, Lewis Alexander, and Joseph Gagnon[1]

I. Introduction

The establishment of the German Economic, Monetary, and Social Union (GEMSU) on July 1, 1990, and the subsequent accession of the former German Democratic Republic (East Germany) into the Federal Republic of Germany (formerly West Germany), raises many fascinating and important economic questions.[2] The purpose of this paper is to quantitatively assess adjustment in Germany in the wake of unification and its impact on the rest of the world at the macro-economic level. Particular attention is paid to the impact of German unification on other countries participating in the Exchange Rate Mechanism (ERM) of the European Monetary System (EMS).

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[2] There are many good discussions of the economic aspects of unification in English. Three comprehensive sources are: *German Unification: Economic Issues*, IMF Occasional Paper Number 75, L. Lipschitz and D. McDonald editors, published in December 1990; *OECD Economic Survey: Germany*, the 1990 and 1991 editions; and *Report of the Deutsche Bundesbank for the Year 1990*. Articles in the *Monthly Report of the Deutsche Bundesbank* for the months June, July, and October of 1990 and July and October of 1991 are also helpful. Similarly, reports in the June and August 1991 issues of the *Economic Bulletin*, published by Gower Publishing for the Deutsches Institut fur Wirtschaftforschung (DIW), are also extremely informative.

The analysis presented here is based on the same conceptual approach that was used in an earlier paper on German unification.[3] The analysis relies on a moderately large econometric model, MX3.[4] The impact of German unification is captured by augmenting the supply side of the West German sector of the MX3 model to reflect the inclusion of East German labor and capital in an expanded German economy. The advantage of this approach over other studies of the effects of unification is that it does not require any arbitrary assumptions about the behavior of endogenous economic variables. To the extent that we make assumptions about exogenous variables and structural parameters, we conduct sensitivity analysis to determine the robustness of our results.

This paper incorporates two significant improvements over our previous work. First, the East German supply sector is more detailed. It incorporates a separate investment function for Eastern Germany, and transitional unemployment is modeled explicitly. Second, better information is used to calibrate the East German supply sector.

This paper is organized as follows. The next section describes the econometric model that is used to simulate German unification and discusses the aspects of that model that are critical for our results. The third section explains in more detail how German unification is modeled. The fourth section of the paper presents a "base case" simulation. Next a set of simulations are presented that attempt to gauge the sensitivity of the basic results to alternative assumptions regarding key variables. The sixth section describes how the EMS

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[3] See L. Alexander and J. Gagnon, "The Global Economic Implications of German Unification," International Finance Discussion Papers Number 379, April 1990.

[4] For a detailed description of the MX3 model see J. Gagnon, "A Forward-Looking Multi-country Model for Policy Analysis: MX3," forthcoming (1992) in *Economic and Financial Computing*.

is modeled and presents an EMS "base case" simulation. The impact of alterative policies in Germany on other EMS countries is analyzed in the seventh section. The paper ends with a brief conclusion. Tables that give detailed results for all the simulations are included as an appendix.

II. The Analytical Framework

MX3 is a good framework for analyzing the macroeconomic impact of German unification. The supply side of the model is well developed and theoretically grounded. In the medium to long run the real side of MX3 performs very much like a neoclassical growth model. This property is important since adjustment in Eastern Germany is, in the long run, primarily a supply phenomenon. In addition, private agents are forward-looking in MX3; their expectations are rational in the sense of being model-consistent. Future expectations play a key role since they allow future adjustment to affect current prices, saving, and investment, as well as the prices of financial assets.

The critical assumption in the simulations presented below is that the initial capital-labor ratio in Eastern Germany is substantially below that of Western Germany. As a consequence, unification increases German aggregate demand, primarily through increased investment and consumption, more than it increases German capacity. Short-term interest rates in Germany have to increase in order to offset the corresponding effect on prices. Higher interest rates appreciate the Deutschemark (DM). However, as adjustment in Eastern Germany accelerates, these effects are reversed. German capacity grows quickly, interest rates decline in response, and the DM depreciates. This pattern of initial appreciation of the DM followed by depreciation reflects a cycle of foreign borrowing to finance domestic

investment. Initially, Germany absorbs more goods from its trading partners due to the rapid accumulation of capital in Eastern Germany. Eventually, this borrowing is reversed, and Germany must export more to offset the decline (relative to baseline) in its net external assets position.

The impact of these changes in Germany on other countries depends, not surprisingly, on how their policies respond. In countries where monetary policy is geared towards internal balance German unification has little effect on the level of output. The positive stimulus from exports to Germany is offset with marginally higher interest rates. But when EMS countries match increases in German interest rates in order maintain fixed nominal parities vis-à-vis the DM, the effects are more dramatic. Real growth and inflation in EMS countries initially decline because the direct impact of unification on aggregate demand in other EMS countries is much less than in Germany, while interest rates go up by the same amount. As German interest rates come down, however, the growth of aggregate demand in EMS countries accelerates. Since capacity in other EMS countries does not grow as rapidly as in Germany, inflation in other EMS countries eventually increases relative to inflation in Germany. Thus German unification initially contributes to the convergence of inflation rates within the EMS, but this effect is short-lived. Both fiscal and monetary policy in Germany can be used to dampen the impact of unification on *output* in other EMS countries, but only changes in German fiscal policy can dampen the effect of unification on relative inflation rates.

The modeling approach used in this paper requires a number of compromises. First, estimates of important structural parameters based on past data for Western Germany are assumed to apply in Eastern Germany. Although obviously unrealistic, we feel that this

assumption is justified in the context of this paper. The reforms that underlay the formation of the GEMSU were fundamentally one-sided. East Germany simply adopted much of the legal and institutional framework of the economic system of Western Germany. Thus the structure of the economy in unified Germany is, in many important ways, very similar to that of pre-unification West Germany. Moreover, the structure of the model was modified wherever differences between Eastern and Western Germany were judged to have significant macroeconomic impacts. For example, labor supply in Eastern Germany has been modified to take into account the tendency for wages in the two regions to converge.

Another difficulty in implementing this modeling approach is the need to make assumptions about important exogenous variables. In some cases, such as the labor force, these variables are at least observable. In other cases the necessary assumptions can reasonably be described as speculative. Perhaps the most important example is the expected performance of productivity. It is reasonable to expect a substantial increase in disembodied total factor productivity as the incentives of a market economy are introduced. But how large is this effect? Sensitivity analysis was used to assess the quantitative significance of alternative assumptions for important exogenous variables.

The final (major) difficulty with these simulations is related to the EMS. The MX3 model has explicit sectors for Western Germany, the United States, and Japan. The model is closed with a rest-of-world sector (ROW). The absence of an explicit sector for other EMS countries creates a problem in choosing appropriate monetary policies for simulations. Allowing the exchange value of the DM to fluctuate vis-à-vis the ROW currency understates the significance of the EMS. But the alternative assumption of fixing the German-ROW

exchange rate overstates its significance. This issue is addressed in the fourth section of this paper.

The problems described above undermine confidence in the simulations presented in this paper as precise estimates of the macroeconomic impact of German unification. But the real strength of the MX3 model is its structure. The simulations presented in this paper capture the fundamental relationships that dictate how German unification affects other countries and so the problems cited above should *not* call into question the basic pattern of the results.

III. The Modeling Approach

MX3 is a medium-sized macroeconomic model of the United States, Japan, Western Germany, and the rest of the world (ROW). The structure of MX3 is broadly similar to traditional macro models in that economic agents are separated into four main groups--households, producers, traders, and governments. Through the decision rules of these groups a general equilibrium is achieved at market interest rates and prices. However, MX3 differs from traditional large-scale models in some important dimensions. First, forward-looking expectations play a central role in the consumption, investment, exchange rate, and price contract equations. Second, MX3 is designed to exhibit the qualities of an optimal growth model in the long run. It is therefore well-suited to explore the effects of permanent changes to the productive sector of an economy. Moreover, by using actual data and estimated parameters, the MX3 model can give quantitative predictions consistent with optimal growth theory.

German unification is modeled by augmenting the supply equations in the West German model to include East German factors of production. This modification required not only changing the structure of the supply side, but also choosing the levels of important variables and parameters. Choices regarding these magnitudes determine both the speed with which the East German economy converges with the West German economy and the strength of the spill-over effects on other countries. The critical assumption is that Eastern Germany brings relatively more labor than capital to the union, creating a substantial differential between the capital-labor ratios in the two regions. As a result, unification increases German aggregate demand--primarily through increased investment and consumption--more than it increases German aggregate supply.

The most significant changes to the model for this study involve adding separate expressions for East German capacity, labor supply, and fixed investment. In MX3, the price and capacity equations interact to determine prices in a manner consistent with a natural-rate model of price determination. Embedded in this structure is a forward-looking staggered contracts equation that prevents prices from adjusting instantaneously.

Productive capacity is modeled as a Cobb-Douglas function of capital and labor with Hicks-neutral technical progress. In equation 1, ***CAP*** refers to capacity output, ***Q*** indexes the level of technology, ***K*** represents the stock of capital, ***L*** is the labor supply, and α is the elasticity of output with respect to capital.

$$CAP = QK^{\alpha}L^{1-\alpha} \qquad (1)$$

One approach to modeling the unification would simply augment the West German factor supplies with estimated values of East German capital and labor. We did not take this approach, however, because it implicitly assumes that labor is completely free to move throughout the newly united Germany to equalize the capital-labor ratios of the two regions immediately upon unification. Instead, our approach adds a separate Cobb-Douglas capacity term for Eastern Germany and therefore implies segmented labor markets between the two regions, as given by equation 2.

$$CAP = Q_w K_w^{\alpha} L_w^{1-\alpha} + Q_e K_e^{\alpha} L_e^{1-\alpha} \qquad (2)$$

Currently, labor productivity in East Germany is estimated at roughly one third the level of Western Germany. The inclusion of a separate East German level of technology, Q_e in the model allows us to examine the effects of different sources of this stylized fact more closely. If the labor productivity gap reflects a deficiency in disembodied efficiency, captured in the variable Q_e, then it is reasonable to believe that the application of improved management techniques and the introduction of market incentives could significantly increase East German productivity without any additional investment. Alternatively, if the gap in labor productivity reflects a shortage of capital, due in part to antiquated production technologies that are embodied in existing plant and equipment, then a high volume of additional investment will be required to raise labor productivity in Eastern Germany to West German levels. Clearly, both the gap between the initial levels of Q_e and Q_w and the rate at which this technology gap is closed are fundamental to predicting the speed of convergence to a new long-run steady state equilibrium.

The assumption that the capital stocks of the two German regions remain separate necessitates adding an East German fixed investment equation to the model. The specification of the East German fixed investment equation mirrors that of Western Germany, which is essentially neoclassical. In the long run, the returns to capital must equal the cost of capital.

$$\{(1-\tau)(R+\delta-\Delta P)+\pi\}K_e^* = \alpha(1-\tau)\left(\frac{CAP_e}{CAP_e+CAP_w}\right)GDP \qquad (3)$$

The first term in the brackets on the left of equation 3 represents the after-tax cost of holding a unit of capital for one period: τ is the tax rate; R is the nominal interest rate; δ is the depreciation rate; and ΔP is the inflation rate. The term π represents the risk premium needed to induce agents to hold risky capital rather than safe government bonds; π is assumed to be constant. The right side of equation 3 represents the return to capital in Eastern Germany based on its share of capacity. Given a Cobb-Douglas production function and competitive markets, capital's share of after-tax output (GDP) is simply the exponent on capital, α, in the production function. Given equation 3, the optimal level of capital stock, K^*, can be found. If it is costly to adjust the capital stock, some slowness in the adjustment process generally will be optimal. Equation 4 describes fixed investment as process that adjusts slowly to deviations between the desired and the actual capital stock. Clearly, a critical assumption for modeling German unification in this equation is the value of initial investment in the East.

$$(1+cd)I_{et} = cI_{et-1} + dI_{et+1} + (1-c)(1-d)\left[K^{*}_{et} - (1-\delta)K_{et-1}\right] \quad (4)$$

Given that MX3 does not model labor supply in its description of aggregate price behavior, a labor market for Eastern Germany is added to the model to incorporate the supply effects of unemployment in the East that may arise during the transition period of unification. In the West German sector of MX3, the labor force is assumed to be exogenous and the "natural rate" of unemployment is implicitly fixed at the average value of the unemployment rate during the estimation period, roughly 8 percent. In Eastern Germany, we assume that the natural rate of unemployment is identical to that of Western Germany. In addition we assume that excess unemployment in Eastern Germany is positively related to the wage gap between Eastern and Western Germany. According to equation 5 the excess unemployment rate in Eastern Germany is one-fifth of the gap in wages between Western and Eastern Germany, where ***LF*** is the "full employment" labor supply and ***W*** is the wage rate.

$$\frac{LF_e - L_e}{LF_e} = 0.2\frac{W_w - W_e}{W_w} \quad (5)$$

The labor demand equation equates the marginal product of labor in each region with the wage rate in each region. The coefficient on the wage gap in equation 5 was chosen to yield a plausible path for excess unemployment in the base case scenario.[5]

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[5] The full-employment labor force in Eastern Germany is assumed to be fixed at 8.8 million in the base case simulation. In contrast, the West German labor force is assumed to grow at 0.5 percent a year. We conducted numerous alternative simulations, of which we present one below, that show that our results are quantitatively, but not qualitatively, affected by changes in these assumptions.

Fiscal policy in the MX3 is modeled as an exogenous path for real government spending and a tax reaction function in every country. In the base case simulation, government spending is raised by a sufficient amount to keep per worker expenditures in unified Germany equal to per worker expenditures in the West German baseline. Tax rates in unified Germany are set so that the deviation of the fiscal deficit from baseline in the second half of 1990 and in 1991 are broadly consistent with current projections.[6] After 1991, the tax rate adjusts endogenously to maintain a constant ratio of national debt to national income. The stock of German government debt is adjusted to reflect the creation of new "equalization" claims in the conversion of East German Mark assets into DM. The implicit assumption is that the proceeds from the sale of state-owned assets in Eastern Germany are sufficient to retire the initial stock of debts held by state-owned enterprises.[7]

IV. The Base Case Simulation Framework

Table 1 presents the "base case" assumptions for key East German variables in the model as of 1990:2. It should be noted that altering some of the East German supply-side assumptions affects the simulations markedly, making the sensitivity analysis that follows the base case discussion an important component of the simulation results. In the base case, monetary policy in all countries is assumed to target prices. This means that excess aggregate demand pressures that would normally lead to changes in the rate of inflation, are

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[6] Tax rates are adjusted to create a 150 billion DM deficit (at an annual rate) in the second half of 1990 and a 130 billion DM deficit in 1991.

[7] Ongoing deficits incurred by the Treuhandanstalt, the trust fund that manages state-owned enterprises in Eastern Germany, are assumed to be part of the government's current fiscal accounts.

instead translated into interest rate movements by the monetary authorities. We relax this assumption later in alternative policy simulations that are meant to be a stylized version of the EMS, in which the monetary authority in ROW targets its bilateral exchange rate with Germany.

Table 1

Base Case East German Variables
% of West German Variable in 1990:2

Technology Factor	50%
Labor Force	30
Capital Stock	9
Government Debt	37
Net Foreign Assets	-3
Gross Domestic Product	10
Consumption	10
Fixed Investment	0
Government Expenditure	23
Exports	0
Imports	0
GDP Deflator	100

In the model baseline, real variables and prices in Western Germany are both assumed to grow at 3 percent per year. Real variables in Eastern Germany are assumed to grow at an annual rate of 0.5 percent less than in Western Germany, reflecting a 0.5 percent annual labor force growth rate in Western Germany and a constant labor force in Eastern Germany. In all German sectors where the East German economy is not explicitly modeled, the baseline values for unified Germany are simply the sum of the baselines for Eastern and Western Germany.

In the simulations of German unification, the structure of the West German sector of MX3 is modified in the manner described previously. The assumed initial values of East German variables are added to the existing values for West German variables and an exogenous path is set for the East German disembodied productivity parameter Q_e. In the base case, Q_e is assumed to be 50 percent of Q_w at the beginning of the simulation period. Subsequently Q_e increases steadily and converges with Q_w after 5 years.

The heavy lines in Charts 1-3 illustrate the results of the base case simulation of German unification in the MX3 model. (More detail on the base case and other simulations is provided in Tables A1-A12 in the appendix.) The initial effect of unification is to increase German aggregate demand by more than East German capacity. The impetus for this effect is the high marginal product of capital in Eastern Germany that encourages additional investment. Since the structure and parameters of the unified German model are identical to those of the West German baseline, equilibrium occurs only when the marginal product of capital in Eastern Germany is equal to that of baseline Western Germany. In addition, unification increases East German permanent income, which in turn increases aggregate consumption.

Fixed investment in Eastern Germany follows a partial adjustment process and so takes a number of years to build up. As investment accelerates throughout the decade (top panel of Chart 3), aggregate demand grows concomitantly. Given the Bundesbank's unwillingness to allow for an acceleration of inflation, interest rates in Germany are forced to rise to offset the excess demand (bottom panel of Chart 2). The higher interest rates moderate the increase in aggregate demand by reducing West German investment (Table A1) and net exports (bottom panel of Chart 1) through the appreciation of the DM (top panel of Chart 2). The long-term interest rate rises sharply at first, but it declines over time as the increased investment creates additional East Germany capacity. Likewise, the DM appreciates immediately by 14 percent, but then it depreciates consistently over the remainder of the simulation period. Labor productivity in Eastern Germany increases rapidly (bottom panel of Chart 3), initially due primarily to increases in technology, but subsequently due to the growing capital stock. By the end of the decade the East German

Chart 1

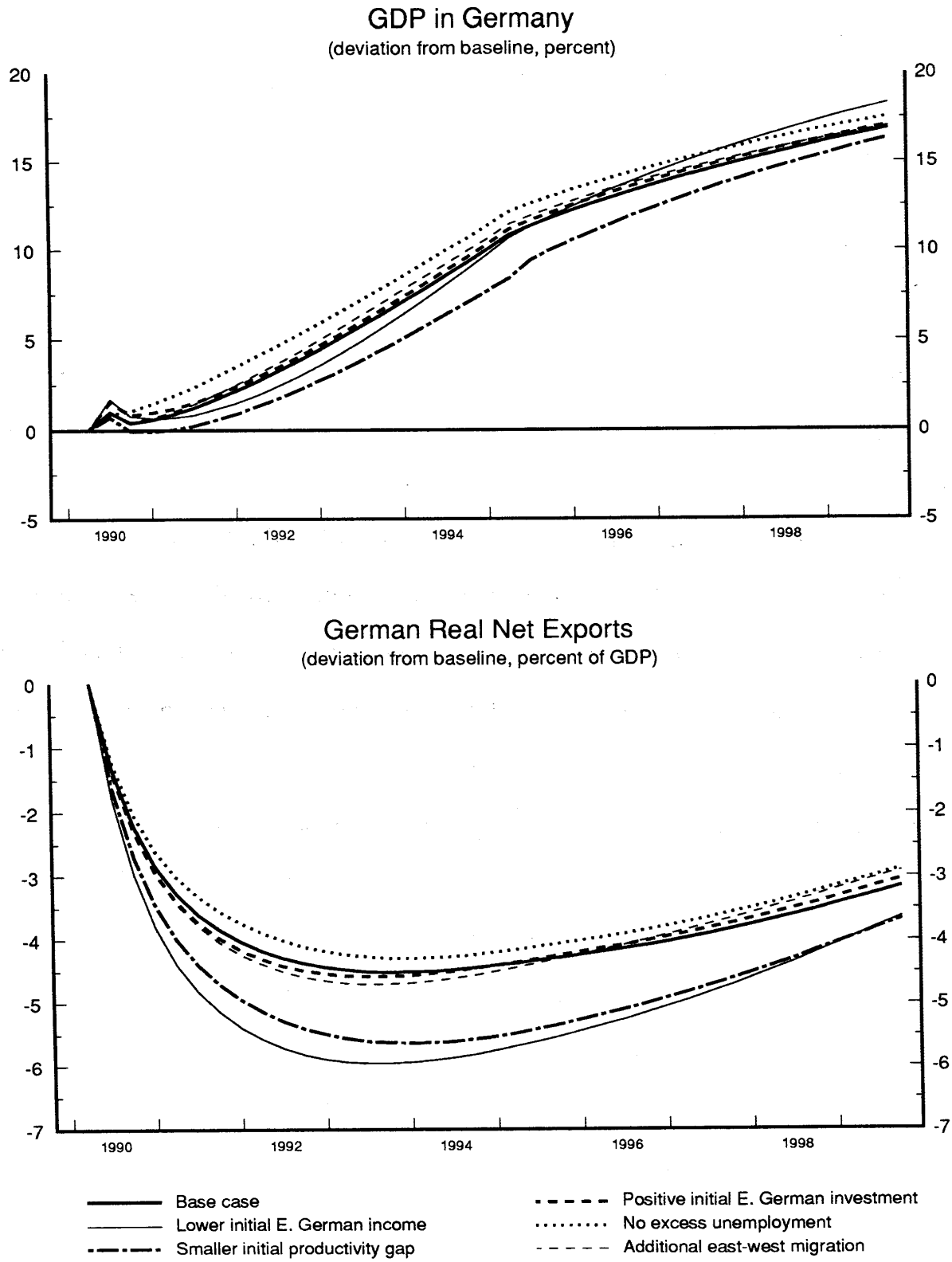
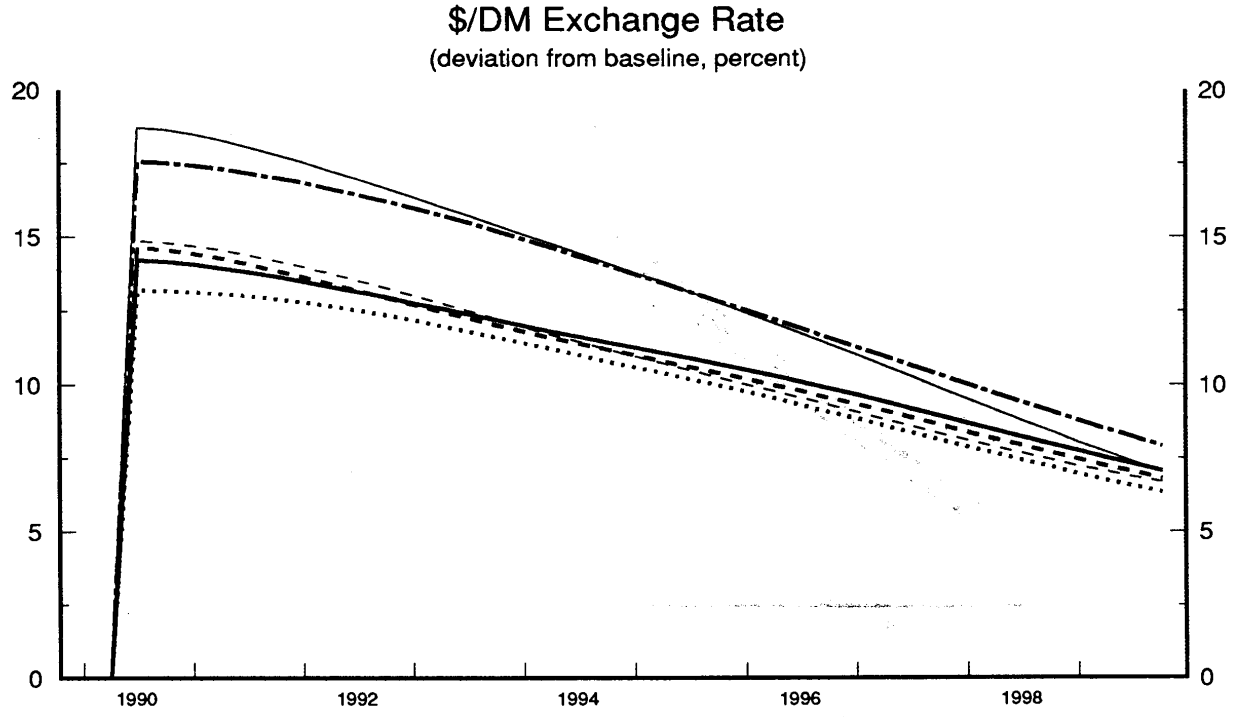

GDP in Germany
(deviation from baseline, percent)
20
15
10
5
0
-5
1990
1992
1994
1996
1998
German Real Net Exports
(deviation from baseline, percent of GDP)
0
-1
-2
-3
-4
-5
-6
-7
Base case
Lower initial E. German income
Smaller initial productivity gap
Positive initial E. German investment
No excess unemployment
Additional east-west migration

Chart 2


$/DM Exchange Rate
(deviation from baseline, percent)
20
15
10
5
0
1990
1992
1994
1996
1998

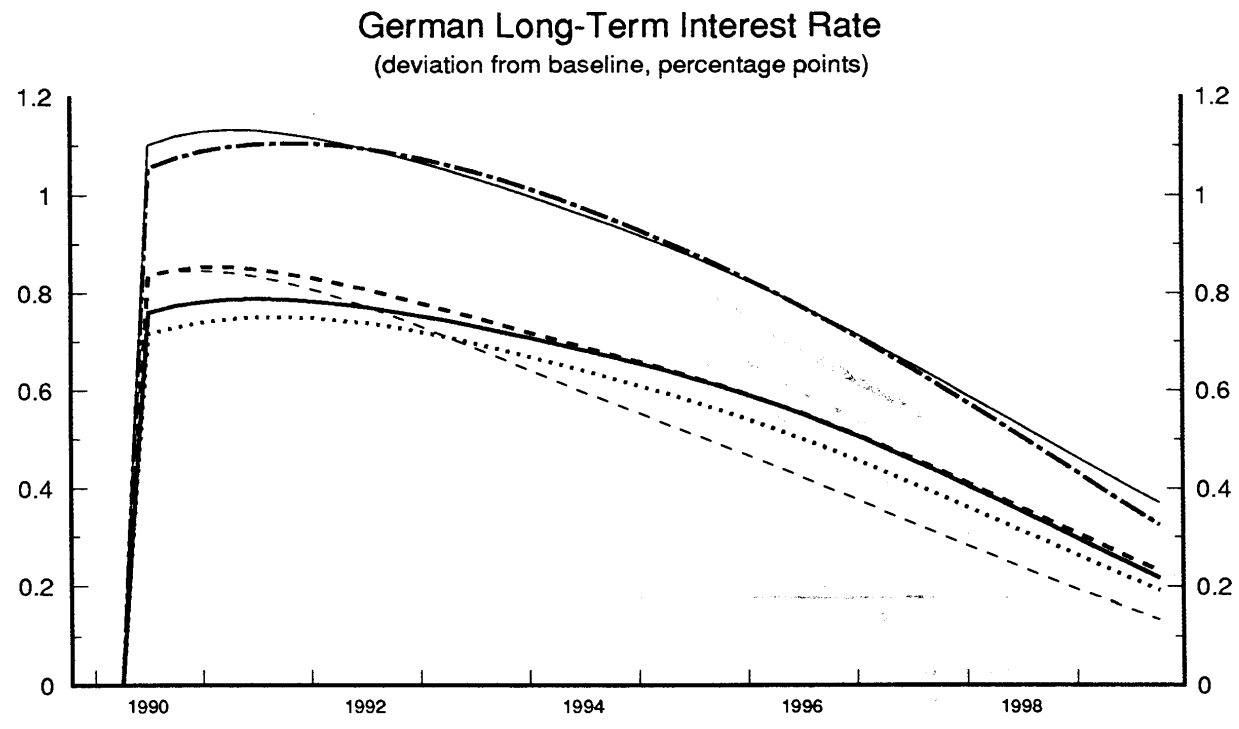
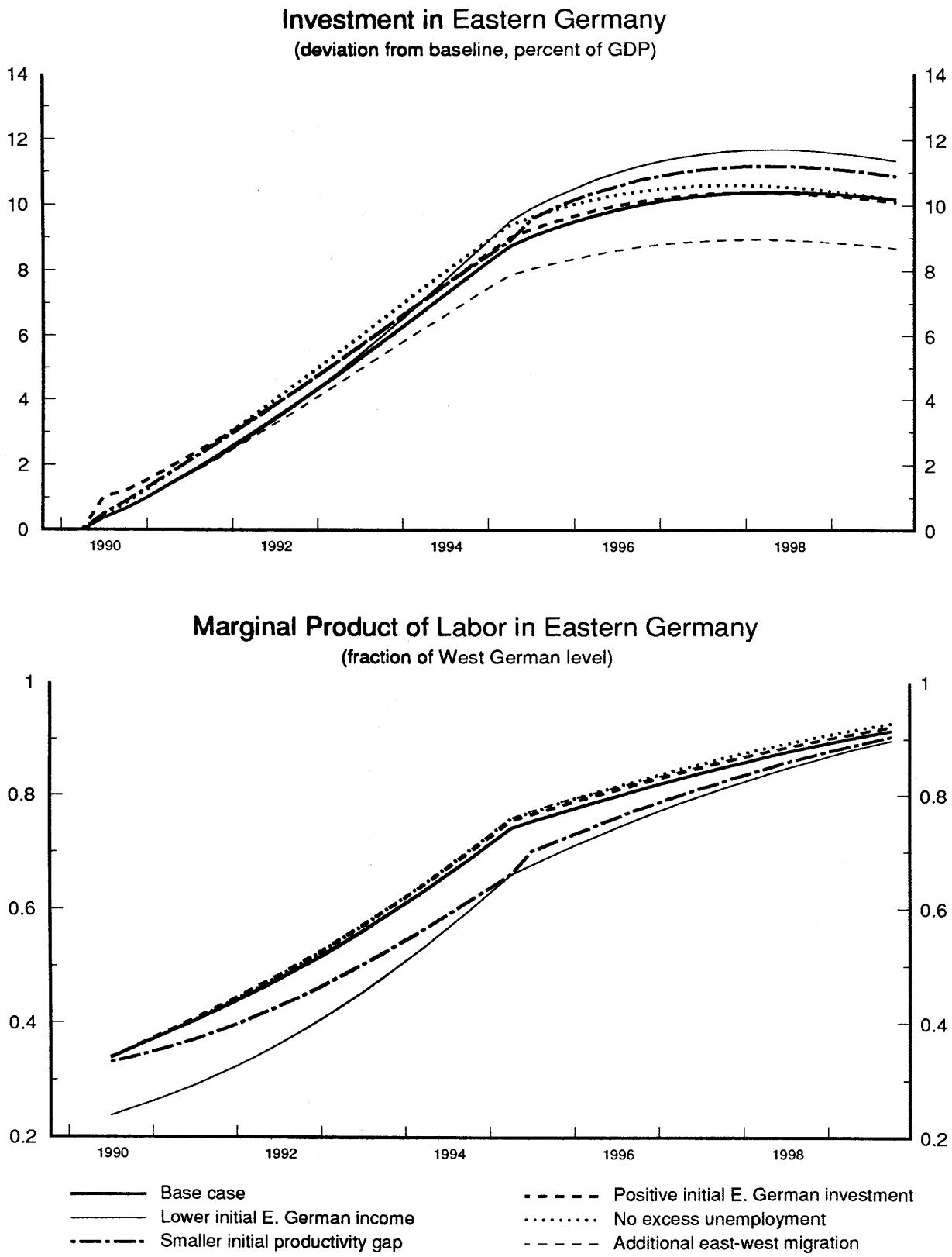

German Long-Term Interest Rate
(deviation from baseline, percentage points)
1.2
1
0.8
0.6
0.4
0.2
0
1990
1992
1994
1996
1998
Base case
Lower initial E. German income
Smaller initial productivity gap
Positive initial E. German investment
No excess unemployment
Additional east-west migration

Chart 3


Investment in Eastern Germany
(deviation from baseline, percent of GDP)
14
12
10
8
6
4
2
0
1990
1992
1994
1996
1998
Marginal Product of Labor in Eastern Germany
(fraction of West German level)
1
0.8
0.6
0.4
0.2
Base case
Lower initial E. German income
Smaller initial productivity gap
Positive initial E. German investment
No excess unemployment
Additional east-west migration

marginal product of labor is 90 percent of that in Western Germany. Excess unemployment in Eastern Germany (Table A1) jumps up to 17 percent of the labor force after unification, but declines steadily to 2 percent of the labor force by 1999.

The magnitude and duration of the impact of unification on other industrial countries depends on the amount of additional investment demand Eastern Germany requires from Western Germany and other industrialized countries. Essentially, Germany goes through a cycle of foreign borrowing to finance domestic investment. The real exchange rate is an important channel for external adjustment. The real value of the DM initially appreciates in order to draw in goods from its trading partners. (Note that because monetary policies in every country target the price level, changes in nominal exchange rates are equivalent to changes in real exchange rates.) This appreciation eventually must erode over time as Germany adjusts to the deterioration of its net foreign asset position.

Much of the controversy surrounding the economic impact of German unification centers on its impact on the exchange value of the DM. In *all* analyses that we are aware of the DM is stronger in the short run than it is in the long run. The depreciation of the DM over time is necessary to induce the changes in the flow of goods implicit in the cycle of foreign borrowing to finance domestic investment. The impact of unification on the *level* of the DM, both immediately and over time, depends on the assumptions one makes about the long-run impact of German unification on the relative price of goods produced in Germany. A number of authors have argued that unification must reduce the relative price of German goods in the long run because it increases the supply of "German" goods. This conclusion is true, however, only under the assumption that goods produced in different countries are imperfect substitutes. McKibbin has presented results of this type based on simulations

using the McKibbin-Sachs Global (MSG) model.[8] The MSG model assumes roughly a unitary price elasticity and so German unification, which increases German capacity by 25 percent in the long run, causes a long-run real depreciation of the DM by about 25 percent. In contrast, the trade equations in MX3 are based on the assumption that goods produced in different countries are perfect substitutes in the long run. As a result, in the MX3 simulations, German unification has no impact on the long-run value of the DM.[9]

The impact of unification on other industrial countries is seen in interest rate rather than price movements because monetary authorities in all countries are assumed to target prices in the base case. (See Table A1.) This reduces investment in all countries except Germany, and therefore lowers capacity and output over the medium run. The appreciation of the DM against the ROW aggregated currency is less than against either the dollar or the yen because ROW gets a larger share of the unification spillover due to historical trade patterns.

V. Sensitivity Analysis of Key Assumptions

As mentioned above, altering any of the assumptions of certain key variables changes the base case results significantly. These alternative assumptions can be placed in two

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[8] See W. McKibbin, "The New Europe and its Implications for the World Economy," Brookings Discussion Papers in International Economics, 1991.

[9] In order to solve both the MX3 and the MSG models assumptions must be made about the terminal values for forward-looking variables, including the exchange rate. We have checked the MX3 simulations to determine the degree to which terminal values affect the simulations. In general the MX3 simulation results are *not* sensitive to reasonable changes in the terminal values. We conclude that differences between the structure of the models, rather than arbitrary assumptions about terminal values, generate the contrasting results.

groups; those that tend to exacerbate the effects of unification on other industrial countries by increasing the investment needs of Eastern Germany, and those that tend to mitigate the effects of unification by contributing to East German capacity through other channels. As seen in Charts 1-3, both the solid line simulation where the initial income of Eastern Germany is lowered from 10 percent to 7 percent of West German income, and the dotted-dashed line simulation where the East German technology parameter, Q_e, is increased from 50 to 65 percent of the West, are clearly in the former group.[10] In both simulations, the deficit in capital in Eastern Germany is greater so that more capital is needed from abroad. This puts more upward pressure on the interest rate and as seen in chart 2, leads to a much greater initial appreciation of the DM, 18.5 and 17.5 percent respectively, as compared to the 13.9 percent in the base case simulation. The higher initial appreciation of the DM has the expected impact on German net exports as seen in Chart 1.

The other three alternative assumptions tend to reduce the spillover effects on other countries. These assumptions include: 1) assuming an initial level of East German fixed investment consistent with the relative size of East German output (rather than assuming no initial investment); 2) assuming no excess unemployment in Eastern Germany (perfect labor markets); and 3) assuming that 1 million East German workers migrate to Western Germany during the first five years after unification.

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[10] Economists at DIW in Berlin have suggested to us that the Cobb-Douglas parameter, α, may be significantly higher at present in Eastern Germany than in Western Germany. This remark is motivated by evidence that the marginal productivity of capital is extremely high and the marginal productivity of labor is extremely low in Eastern Germany. We believe that this phenomenon may simply reflect the mismeasurement of the value of the East German capital stock. By raising the East German technology factor and lowering the initial East German capital stock, our alternative simulation also increases the marginal productivity of capital and lowers that of labor in Eastern Germany initially.

VI. German Unification and the European Monetary System

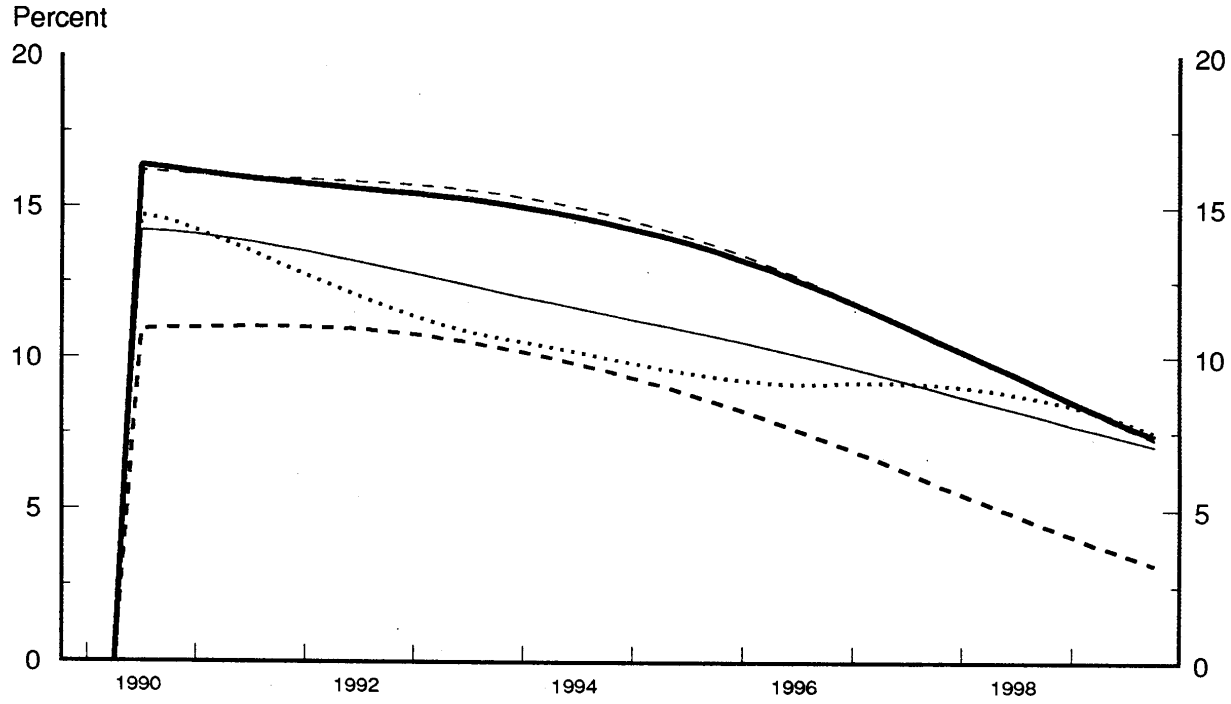
The simulations of the previous two sections assume that exchange rates between Germany and its trading partners are freely determined by the market and that monetary policy in each country focuses on domestic price stability. For members of the EMS it may be more realistic to assume that their monetary policies focus on stabilizing their exchange rates with Germany. Because the non-German members of the EMS are not modeled separately in MX3, it is not possible to simulate the effect of a fixed EMS exchange rate precisely. However, we can explore the effects of the EMS qualitatively by simulating the model under the assumption that ROW monetary policy targets the German-ROW exchange rate. Such simulations exaggerate the implications of the EMS for a number of reasons. In MX3, ROW is responsible for almost 90 percent of Western Germany's trade, whereas EMS countries account for about half of Germany's trade. In addition, the 1992 process has reduced, and may reduce further, trade barriers within the EMS. MX3, like any estimated model, uses trade equations that are based on past relationships. If goods flows within the EMS are now significantly more sensitive to changes in income levels and relative prices, then MX3 will underestimate the extent to which excess German demand spills over to its EMS trading partners in the absence of changes in nominal exchange rates. On the other hand, given the preeminence of the EMS countries in Western Germany's trade, assuming that the DM can fluctuate freely against all other currencies--as in the previous section--is not obviously more plausible than assuming a targeted exchange rate between Germany and ROW.

Charts 4 and 5 present the basic EMS simulation; additional detail is provided in Table A7. Under the EMS assumption, the same pattern of initial real appreciation of the

Chart 4

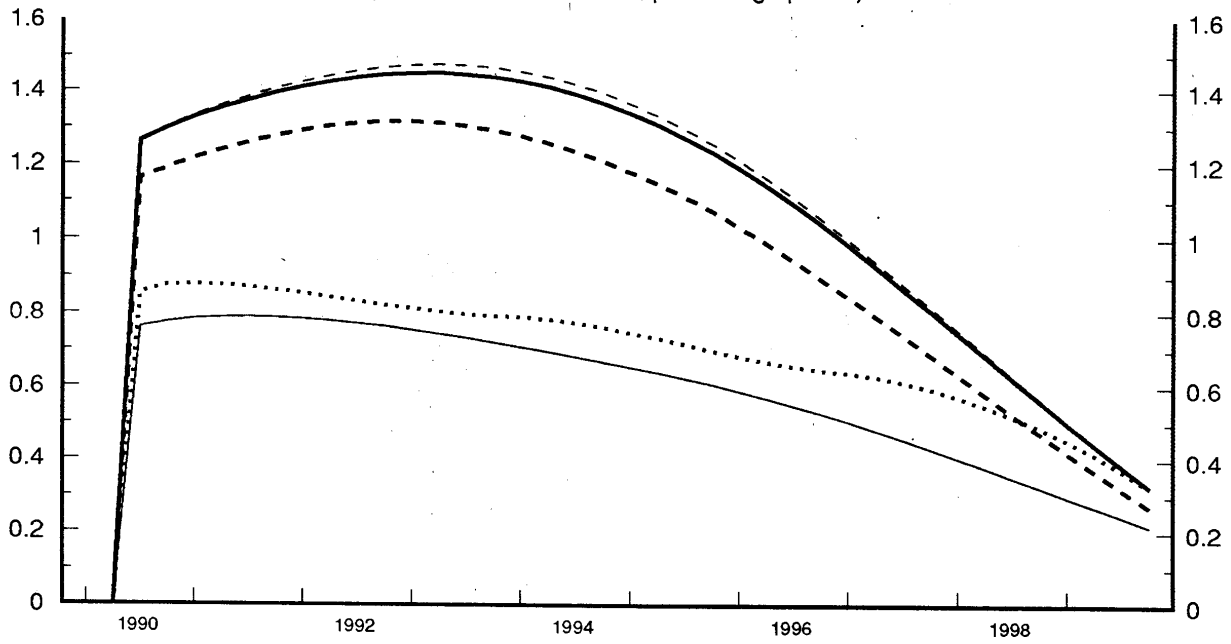
$/DM Exchange Rate

(deviation from baseline, percent)



German Long-Term Interest Rate

(deviation from baseline, percentage points)



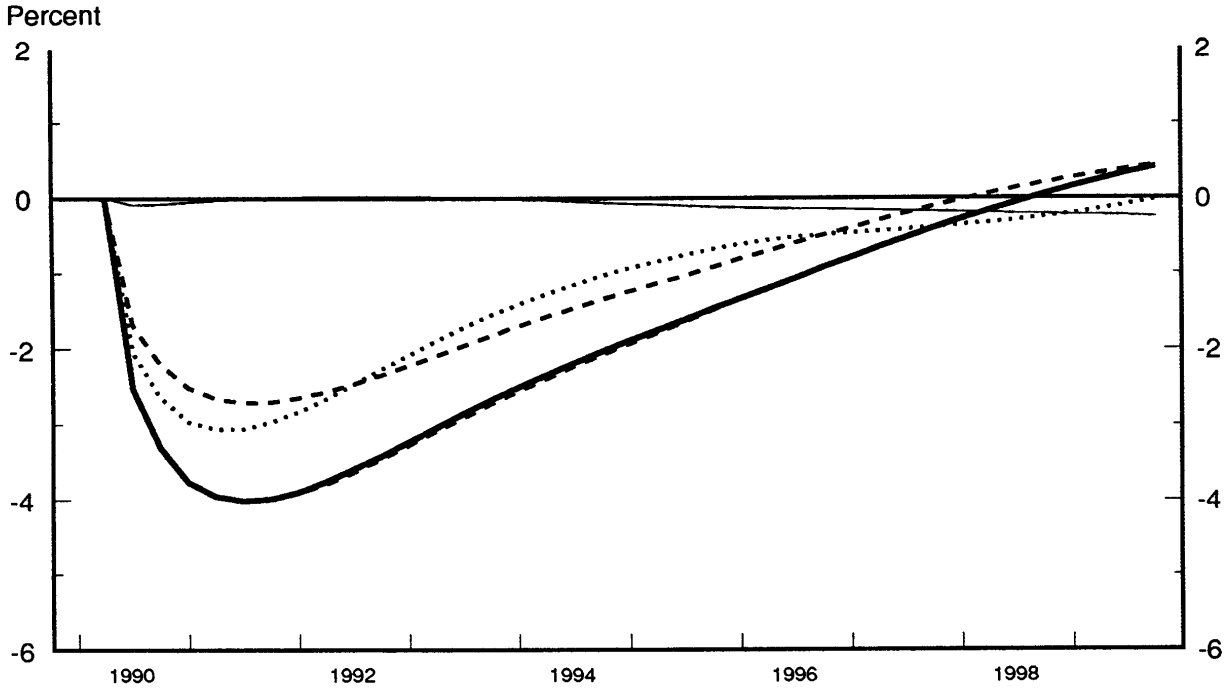
EMS monetary policy in ROW:
- Base case
- Cut in government consumption
- Accomodative German monetary policy
- Tax increase

Price targeting in ROW:
- Base case

Chart 5

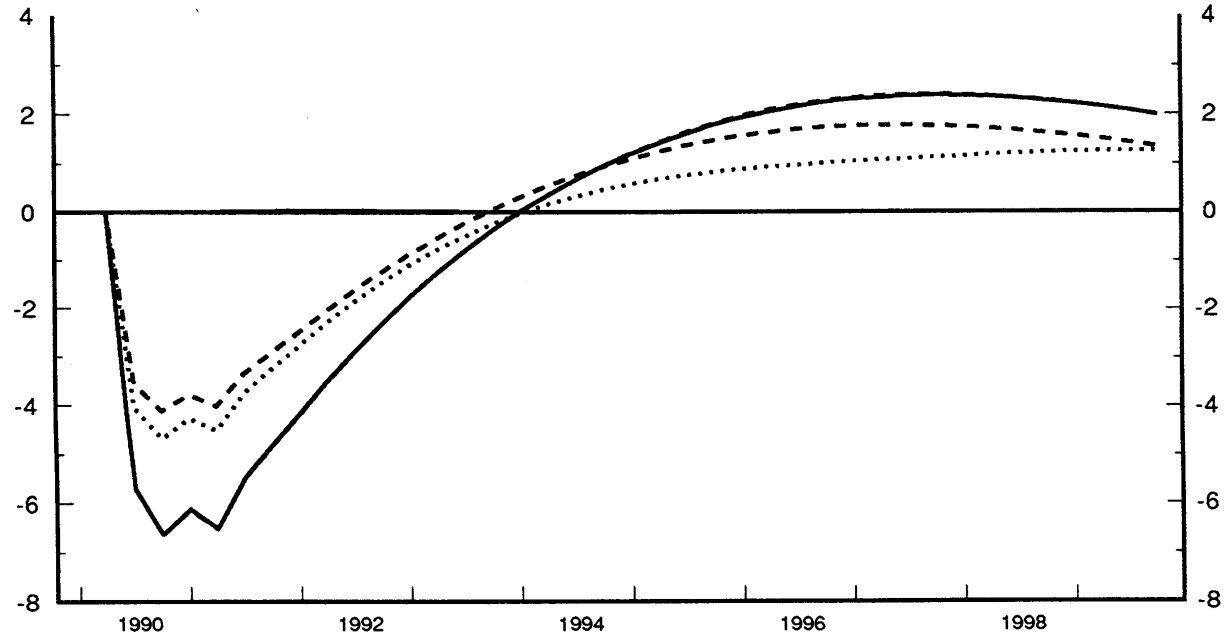
GDP in the "Rest-of-World" Sector

(deviation from baseline, percent)



Inflation in the "Rest-of-World" Sector

(deviation from baseline, percentage points)



EMS monetary policy in ROW:
- Base case
- Cut in government consumption
- Accomodative German monetary policy
- Tax increase

Price targeting in ROW:
- Base case

DM followed by gradual depreciation is reproduced through changes in the price level in ROW (bottom panel of Chart 5). As German interest rates rise, ROW interest rates rise in order to maintain exchange rate parity with the DM. But without the strong direct increase in demand that Germany experiences, output in ROW falls sharply (top panel of Chart 5). This reduces prices as output falls below capacity. The exchange rate is an important channel for monetary policy in ROW. The negative effects of ROW's appreciation against the dollar and yen outweigh the additional demand stimulus from Germany and so ROW's real net exports actually deteriorate (Table A7).

Prices in ROW continue to fall relative to baseline for three years, but then this pattern is reversed. As capacity in Germany grows, the need to restrain German aggregate demand diminishes. The long-term interest rate starts to fall in 1994 in both Germany (bottom panel of Chart 4) and in ROW (Table A7). At this point consumption and investment in ROW start to increase (Table A7). But because capacity in ROW is not growing as quickly as in Germany, this increase in aggregate demand causes an acceleration of inflation in ROW.

It is interesting to note that the impact of German unification on the United States is greater under the EMS regime. In the base case (Table A1) U.S. interest rates are virtually unchanged from the non-unification baseline. But under the EMS regime (Table A7), the long-term interest rate in the United States increases 25 basis points immediately and the peak impact on the short-term interest rate is over 40 basis points. Moreover, with fixed EMS parities, the value of the dollar depreciates more against the DM and ROW currencies, thereby generating a larger increase in U.S. real net exports. Because of the J-curve effect

due to lags in trade flows, the nominal U.S. current account balance actually deteriorates for the first two years.

VII. Alternative Policies and the EMS

Charts 4 and 5 also present alternative simulations of German unification under the EMS assumption. The light dashed line illustrates a simulation in which taxes in Germany are increased by DM 50 billion in 1991. Due to the Ricardian nature of MX3, this tax increase has virtually no impact on real variables in the model. In MX3, consumption is a function of the discounted value of current and future disposable income, and tax rates are assumed to adjust endogenously to return the government debt/GDP ratio in Germany to its baseline level.[11] Therefore, consumers take into account that any increase in current taxes will be offset by a reduction in future taxes. Tax changes that merely shift the burden of taxes through time, without changing the government's basic long-run fiscal objectives, have virtually no impact on the model.

The heavy dashed line presents a permanent reduction in government spending of DM 50 billion a year. In contrast to an increase in taxes, a reduction in government spending directly affects German aggregate demand and thereby generates significant effects on the real variables in the model. In 1991 the spending cut reduces German real GDP by

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[11] Modeling tax rates endogenously is necessary to ensure that governments cannot, or will not, allow government debt to grow without bound. The impact of this restriction can be seen in the behavior of the German fiscal deficit in any of the simulations. High deficits in the initial years cause a sharp increase in the debt/GNP ratio. After 1991 tax rates increase so that the deficit declines significantly in the years 1992-1996. The magnitude of the correction depends on the magnitude of the initial deficits. The rate at which the fiscal deficit adjusts may be, in this case, implausibly rapid. But this adjustment speed has little impact on the simulation results because of the forward-looking household behavior.

0.5 percent. This slowdown, however, is quickly reversed, due to "crowding in" effects. Interest rates do not increase as much as in the EMS base case and thus investment in Western Germany does not fall as much. Lower interest rates reduce the initial appreciation of the DM and ROW aggregate currency by 6 percentage points. This reduces the negative impact of unification on German and ROW real net exports.

The level of government consumption in Germany has a significant impact on ROW. When German government consumption is reduced German interest rates do not increase as much. In this case ROW monetary policy does not need to be as tight in order to peg the ROW/DM exchange rate. This reduces the magnitude of both the deflation and inflation phases in ROW. In the EMS base case ROW inflation varies from 5.7 below baseline to 2.3 percent above baseline. But with the reduction in government spending that range is reduced to from 3.6 percent below baseline to 1.8 percent above baseline.

The dotted line presents an accommodative monetary policy in Germany. German monetary authorities are assumed to accept additional price increases of 1 percent a year in 1990, 1991, and 1992. Those increases in the price target are reversed by 1 percent reductions in the price target in 1997, 1998, and 1999. Due to the staggered-contracts method of modeling the Phillips curve in MX3, inflation follows a somewhat smoother pattern. As expected, a stimulative monetary policy raises German real GDP 1.3 percent in 1991 and 1.2 percent in 1992. It both reduces the initial increase in German and ROW long-term interest rates by about 40 basis points, and it reduces the appreciation of the DM and ROW aggregate currency by 4.3 percentage points. As in the previous government spending shock, lower interest rates mitigate the spillover effects on ROW, reducing the negative impact on real GDP by approximately 1 percent from 1991 to 1996. It is worth noting that

the dampening affect on ROW inflation is offset by corresponding changes in German inflation, and so monetary policy is not an effective tool for altering the impact of German unification on relative inflation rates within the EMS.

Another concern being voiced by policy makers in Germany is that the transitional unemployment that is expected when converting to a free market system may be overly burdensome and drag down the speed of convergence between East and West. Two alternative policy responses to this concern would be to offer temporary wage or capital subsidies to increase employment and investment in Eastern Germany, thereby accelerating convergence and reducing the transition costs that unification will impose on some portions of the East German population.[12]

Table A11 presents the results of a wage subsidy in Eastern Germany equivalent to 20 percent of baseline wages. By effectively lowering the wages East German employers pay, excess unemployment in Eastern Germany is not as great as in the EMS base case. German output is noticeably higher in this scenario, but most of the extra output is consumed rather than invested, so that convergence of Eastern and Western Germany occurs only slightly faster than under the EMS base case. The wage subsidy significantly raises outstanding government debt at first, but has little effect in the long run as the subsidy shrinks relative to the size of the East German economy and taxes adjust to return the debt/GDP ratio to its baseline value.

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[12] For a detailed proposal for wage subsidies see G. Akerlof, *et al*, "East Germany in from the Cold: The Economic Aftermath of Currency Union," *Brookings Papers on Economic Activity*, 1991:1.

Table A12 presents the results of an investment subsidy that reduces the cost of new capital in Eastern Germany by 5 percentage points. The effect of this capital subsidy on government debt is relatively small. However, investment in Eastern Germany does proceed at a faster pace than under the EMS base case. The overall effect on unemployment and convergence between Eastern and Western Germany is modest, however.

VIII. Conclusion

These simulations suggest that German unification has and will generate pressures within the EMS, and that the retention of current parities cannot be done without cost. The capital needs of Eastern Germany generate pressures for a strong initial real appreciation of the DM, and then a subsequent real depreciation. If German monetary policy continues to be oriented towards price stability, and current EMS parities are maintained, other EMS countries are likely to experience an initial period of slower growth and deflation, followed by a period of accelerating growth and inflation. The qualitative nature of this conclusion is not dependent upon the model employed in this paper. Rather, it follows directly from two premises: First, price stability in Germany is achieved in the face of a direct stimulus to aggregate demand by raising interest rates enough to keep actual output equal to potential output. Second, the demand stimulus due to German unification falls more heavily on German producers than on producers in other EMS countries. Since other EMS countries experience the same interest rate increase without the same demand stimulus as Germany, the net effect on their economies is contractionary.

None of the potential policy responses to this problem are universally attractive. Within the existing EMS framework, a realignment at the time when GEMSU was esta-

blished, resulting in an appreciation of the DM, would have offset some of the negative short-run spillovers to other EMS countries. However, other problems will arise in the future if realignments in which the DM can depreciate are not possible, even without an earlier appreciation of the DM.

These simulations also suggest that an immediate increase in German taxes, without a change in Germany's long-term fiscal balance, would *not* significantly reduce economic pressures within the EMS. On the other hand, it appears that an immediate reduction in German government spending would mitigate the contractionary effects of German unification on other EMS countries to some degree.

Table A-1: "Base case" Simulation

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	1.1	3.0	5.4	8.2	11.0	12.8	14.2	15.4	16.5
Fixed Inv. West (% of GDP)	-0.5	-0.9	-1.2	-1.3	-1.4	-1.4	-1.3	-1.1	-0.9
Fixed Inv. East (% of GDP)	1.6	3.2	5.1	7.0	8.8	9.8	10.2	10.4	10.3
Priv. Cons. (% of GDP)	2.6	3.9	4.9	5.7	6.4	7.0	7.5	8.0	8.5
Gov't Exp. (% of GDP)	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4
Real Net Exp. (% of GDP)	-3.4	-4.2	-4.5	-4.5	-4.3	-4.2	-3.9	-3.6	-3.3
Infl. Rate (PGNP) (+/-)	0.2	0.1	-0.0	-0.0	0.0	0.1	0.0	-0.0	-0.1
S.t. Int. Rate (+/-)	0.60	0.77	0.79	0.74	0.73	0.83	0.90	0.90	0.84
L.t. Int. Rate (+/-)	0.78	0.78	0.75	0.71	0.66	0.59	0.51	0.41	0.30
Nom. Exch. Rate (%,$/DM)	13.9	13.2	12.5	11.7	11.0	10.2	9.3	8.3	7.4
Current Bal. (US$,B)(+/-)	-14.0	-33.2	-45.7	-55.4	-63.1	-70.6	-78.0	-84.6	-90.1
Fiscal Def. (DM,B)(+/-)	120.0	78.5	30.4	-16.5	-49.4	-54.8	-39.5	-9.0	29.5
Capacity Ratio (E/W)	0.11	0.13	0.15	0.18	0.21	0.23	0.24	0.25	0.26
M.P.Labor Ratio (E/W)	0.40	0.47	0.55	0.65	0.74	0.79	0.84	0.87	0.90
Excess E. German Unemp.(%)	17	14	11	8	5	4	3	2	2
UNITED STATES									
Real GDP (%)	0.3	0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Fixed Inv. (% of GDP)	-0.1	-0.1	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1	-0.1
Priv. Cons. (% of GDP)	-0.3	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5
Real Net Exp. (% of GDP)	0.7	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.5
Infl. Rate (PGNP) (+/-)	0.1	-0.0	-0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.13	0.15	0.11	0.06	0.03	0.01	0.00	0.00	0.00
L.t. Int. Rate (+/-)	0.05	0.03	0.02	0.01	0.01	0.01	0.01	0.01	0.02
Current Bal. (US$,B)(+/-)	7.0	9.4	8.9	8.2	8.2	8.1	7.8	7.7	8.2
JAPAN									
Real GDP (%)	0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0	0.0	0.1
Fixed Inv. (% of GDP)	-0.0	-0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2
Priv. Cons. (% of GDP)	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2
Real Net Exp. (% of GDP)	0.1	-0.0	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4
Infl. Rate (PGNP) (+/-)	0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.03	0.00	-0.03	-0.06	-0.07	-0.08	-0.09	-0.10	-0.10
L.t. Int. Rate (+/-)	-0.06	-0.07	-0.08	-0.08	-0.08	-0.08	-0.07	-0.06	-0.06
Nom. Exch. Rate (%,$/Yen)	-1.9	-1.8	-1.7	-1.6	-1.5	-1.4	-1.3	-1.2	-1.0
Current Bal. (US$,B)(+/-)	-5.8	-5.2	-7.9	-11.6	-15.5	-19.2	-22.6	-25.6	-27.9
REST OF WORLD									
Real GDP (%)	-0.0	0.0	-0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2
Fixed Inv. (% of GDP)	-0.1	-0.2	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.3
Priv. Cons. (% of GDP)	-0.3	-0.5	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6
Real Net Exp. (% of GDP)	0.4	0.6	0.8	0.9	0.9	0.9	0.9	0.9	0.8
Infl. Rate (PGNP) (+/-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.03	0.10	0.15	0.18	0.20	0.22	0.24	0.26	0.26
L.t. Int. Rate (+/-)	0.19	0.21	0.22	0.23	0.22	0.22	0.20	0.19	0.16
Nom. Exch. Rate (%,$/Row)	4.3	4.4	4.4	4.4	4.2	4.0	3.8	3.6	3.3
Current Bal. (US$,B)(+/-)	12.8	29.0	44.7	58.8	70.4	81.7	92.8	102.4	109.8

Percent (%) and absolute (+/-) deviations from baseline

Table A-2: Simulation with Lower Initial East German Income

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	0.8	2.2	4.6	7.6	10.9	13.2	15.0	16.6	17.9
Fixed Inv. West (% of GDP)	-0.8	-1.3	-1.7	-2.0	-2.1	-2.0	-1.9	-1.6	-1.3
Fixed Inv. East (% of GDP)	1.5	3.2	5.1	7.4	9.6	10.9	11.5	11.7	11.5
Priv. Cons. (% of GDP)	2.7	3.9	4.9	5.7	6.4	7.1	7.6	8.2	8.7
Gov't Exp. (% of GDP)	3.5	3.6	3.6	3.7	3.7	3.7	3.8	3.8	3.9
Real Net Exp. (% of GDP)	-4.5	-5.6	-5.9	-5.9	-5.6	-5.3	-4.9	-4.4	-3.8
Infl. Rate (PGNP) (+/-)	0.4	0.1	-0.0	-0.0	0.0	0.1	0.0	-0.0	-0.1
S.t. Int. Rate (+/-)	0.93	1.14	1.15	1.13	1.14	1.21	1.26	1.23	1.13
L.t. Int. Rate (+/-)	1.13	1.12	1.07	1.00	0.92	0.83	0.71	0.59	0.46
Nom. Exch. Rate (%,$/DM)	18.2	17.1	15.9	14.6	13.3	11.9	10.4	8.9	7.5
Current Bal. (US$,B)(+/-)	-20.2	-46.4	-63.2	-76.2	-86.5	-95.7	-103.9	-110.8	-116.0
Fiscal Def. (DM,B)(+/-)	124.6	81.0	27.2	-26.3	-64.7	-72.3	-54.3	-17.3	30.2
Capacity Ratio (E/W)	0.07	0.09	0.12	0.15	0.18	0.21	0.23	0.24	0.25
M.P.Labor Ratio (E/W)	0.28	0.35	0.44	0.55	0.67	0.73	0.79	0.84	0.88
Excess E. German Unemp.(%)	23	19	15	11	7	6	4	3	2
UNITED STATES									
Real GDP (%)	0.4	0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.3	-0.3
Fixed Inv. (% of GDP)	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Priv. Cons. (% of GDP)	-0.4	-0.7	-0.8	-0.8	-0.8	-0.7	-0.7	-0.7	-0.7
Real Net Exp. (% of GDP)	0.9	0.9	0.9	0.9	0.8	0.7	0.7	0.6	0.6
Infl. Rate (PGNP) (+/-)	0.1	-0.0	-0.1	-0.1	-0.0	-0.0	-0.0	-0.0	0.0
S.t. Int. Rate (+/-)	0.16	0.17	0.09	0.01	-0.05	-0.08	-0.11	-0.13	-0.14
L.t. Int. Rate (+/-)	-0.02	-0.05	-0.08	-0.10	-0.10	-0.10	-0.09	-0.07	-0.04
Current Bal. (US$,B)(+/-)	5.2	7.9	6.8	5.7	5.3	5.0	4.8	4.9	5.8
JAPAN									
Real GDP (%)	0.0	-0.0	-0.0	0.0	0.0	0.1	0.1	0.1	0.1
Fixed Inv. (% of GDP)	-0.0	0.0	0.1	0.2	0.2	0.3	0.3	0.4	0.4
Priv. Cons. (% of GDP)	0.1	0.2	0.3	0.4	0.4	0.5	0.5	0.5	0.4
Real Net Exp. (% of GDP)	0.0	-0.2	-0.4	-0.5	-0.6	-0.7	-0.7	-0.7	-0.7
Infl. Rate (PGNP) (+/-)	-0.0	-0.0	-0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.00	-0.04	-0.07	-0.08	-0.07	-0.06	-0.05	-0.03	-0.02
L.t. Int. Rate (+/-)	-0.04	-0.04	-0.04	-0.03	-0.02	-0.01	0.00	0.00	0.00
Nom. Exch. Rate (%,$/Yen)	-1.1	-0.8	-0.6	-0.5	-0.5	-0.5	-0.6	-0.8	-1.0
Current Bal. (US$,B)(+/-)	-6.4	-7.5	-12.8	-19.7	-26.9	-34.0	-40.7	-46.6	-51.5
REST OF WORLD									
Real GDP (%)	-0.0	0.0	-0.0	-0.1	-0.2	-0.3	-0.3	-0.4	-0.4
Fixed Inv. (% of GDP)	-0.1	-0.3	-0.4	-0.4	-0.5	-0.5	-0.6	-0.6	-0.5
Priv. Cons. (% of GDP)	-0.5	-0.7	-0.9	-1.0	-1.1	-1.1	-1.1	-1.0	-1.0
Real Net Exp. (% of GDP)	0.6	1.0	1.3	1.4	1.4	1.4	1.4	1.2	1.1
Infl. Rate (PGNP) (+/-)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-0.0
S.t. Int. Rate (+/-)	0.07	0.16	0.23	0.26	0.27	0.29	0.30	0.30	0.29
L.t. Int. Rate (+/-)	0.24	0.26	0.27	0.26	0.25	0.24	0.22	0.21	0.19
Nom. Exch. Rate (%,$/Row)	5.7	5.8	5.7	5.6	5.3	4.9	4.5	4.1	3.6
Current Bal. (US$,B)(+/-)	21.5	46.0	69.2	90.1	108.1	124.6	139.8	152.4	161.7

Percent (%) and absolute (+/-) deviations from baseline

Table A-3: Simulation with Lower Initial Productivity Gap

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	0.2	1.5	3.6	6.0	8.9	11.3	13.1	14.6	15.9
Fixed Inv. West (% of GDP)	-0.7	-1.1	-1.5	-1.7	-1.8	-1.8	-1.6	-1.4	-1.1
Fixed Inv. East (% of GDP)	1.9	3.6	5.5	7.3	9.2	10.5	11.0	11.2	11.0
Priv. Cons. (% of GDP)	2.3	3.3	4.1	4.8	5.5	6.1	6.7	7.3	7.9
Gov't Exp. (% of GDP)	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4
Real Net Exp. (% of GDP)	-4.1	-5.2	-5.6	-5.6	-5.4	-5.1	-4.8	-4.3	-3.9
Infl. Rate (PGNP) (+/-)	0.3	0.1	0.1	0.0	0.0	0.0	0.0	-0.0	-0.1
S.t. Int. Rate (+/-)	0.68	0.96	1.10	1.17	1.18	1.21	1.24	1.22	1.13
L.t. Int. Rate (+/-)	1.09	1.10	1.08	1.01	0.93	0.83	0.71	0.57	0.43
Nom. Exch. Rate (%,$/DM)	17.2	16.5	15.6	14.5	13.3	12.1	10.8	9.5	8.4
Current Bal. (US$,B)(+/-)	-17.4	-41.7	-58.0	-71.3	-82.1	-91.1	-99.3	-106.4	-112.1
Fiscal Def. (DM,B)(+/-)	119.7	81.3	34.6	-12.4	-49.7	-62.8	-50.6	-19.7	22.3
Capacity Ratio (E/W)	0.10	0.11	0.13	0.16	0.19	0.21	0.23	0.24	0.26
M.P.Labor Ratio (E/W)	0.37	0.42	0.49	0.58	0.68	0.75	0.81	0.85	0.89
Excess E. German Unemp.(%)	19	16	13	10	7	5	4	3	2
UNITED STATES									
Real GDP (%)	0.4	0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Fixed Inv. (% of GDP)	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1
Priv. Cons. (% of GDP)	-0.4	-0.6	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6	-0.6
Real Net Exp. (% of GDP)	0.8	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6
Infl. Rate (PGNP) (+/-)	0.1	0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.19	0.23	0.19	0.14	0.12	0.11	0.11	0.12	0.13
L.t. Int. Rate (+/-)	0.15	0.14	0.14	0.13	0.13	0.13	0.13	0.12	0.11
Current Bal. (US$,B)(+/-)	7.3	9.8	8.6	7.1	6.1	5.8	5.6	5.8	6.8
JAPAN									
Real GDP (%)	0.1	0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0	0.1
Fixed Inv. (% of GDP)	-0.1	-0.1	-0.0	0.0	0.1	0.2	0.2	0.3	0.3
Priv. Cons. (% of GDP)	-0.0	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3
Real Net Exp. (% of GDP)	0.2	0.0	-0.1	-0.3	-0.4	-0.5	-0.5	-0.6	-0.6
Infl. Rate (PGNP) (+/-)	0.0	-0.1	-0.1	-0.1	-0.0	-0.0	-0.0	-0.0	-0.0
S.t. Int. Rate (+/-)	0.07	0.05	-0.02	-0.07	-0.11	-0.15	-0.18	-0.20	-0.22
L.t. Int. Rate (+/-)	-0.11	-0.14	-0.16	-0.18	-0.19	-0.20	-0.20	-0.19	-0.18
Nom. Exch. Rate (%,$/Yen)	-3.0	-2.9	-2.8	-2.6	-2.4	-2.1	-1.8	-1.4	-1.0
Current Bal. (US$,B)(+/-)	-7.0	-5.5	-8.5	-13.2	-18.3	-23.4	-28.1	-32.2	-35.6
REST OF WORLD									
Real GDP (%)	-0.1	-0.0	-0.0	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3
Fixed Inv. (% of GDP)	-0.1	-0.2	-0.3	-0.4	-0.4	-0.5	-0.5	-0.5	-0.4
Priv. Cons. (% of GDP)	-0.4	-0.6	-0.8	-0.9	-1.0	-1.0	-0.9	-0.9	-0.8
Real Net Exp. (% of GDP)	0.5	0.8	1.1	1.2	1.3	1.3	1.2	1.1	1.0
Infl. Rate (PGNP) (+/-)	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.05	0.15	0.24	0.31	0.37	0.40	0.44	0.46	0.48
L.t. Int. Rate (+/-)	0.34	0.38	0.40	0.42	0.42	0.40	0.38	0.35	0.31
Nom. Exch. Rate (%,$/Row)	5.2	5.4	5.4	5.3	5.1	4.8	4.5	4.2	3.8
Current Bal. (US$,B)(+/-)	17.1	37.4	57.9	77.4	94.2	108.7	121.8	132.7	140.8

Percent (%) and absolute (+/-) deviations from baseline

Table A-4: Simulation with Positive Initial Investment in Eastern Germany

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	1.4	3.2	5.6	8.5	11.3	13.1	14.5	15.7	16.7
Fixed Inv. West (% of GDP)	-0.6	-1.0	-1.3	-1.4	-1.5	-1.4	-1.3	-1.1	-0.9
Fixed Inv. East (% of GDP)	2.1	3.7	5.4	7.3	9.1	9.9	10.3	10.4	10.2
Priv. Cons. (% of GDP)	2.6	3.9	4.9	5.8	6.5	7.1	7.6	8.1	8.6
Gov't Exp. (% of GDP)	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4
Real Net Exp. (% of GDP)	-3.5	-4.3	-4.6	-4.5	-4.3	-4.1	-3.9	-3.5	-3.2
Infl. Rate (PGNP) (+/-)	0.3	0.0	-0.1	-0.1	0.0	0.1	0.0	-0.0	-0.1
S.t. Int. Rate (+/-)	0.81	0.99	0.94	0.84	0.78	0.84	0.90	0.89	0.82
L.t. Int. Rate (+/-)	0.85	0.83	0.78	0.72	0.66	0.59	0.51	0.41	0.31
Nom. Exch. Rate (%,$/DM)	14.2	13.3	12.4	11.5	10.7	9.9	9.0	8.0	7.1
Current Bal. (US$,B)(+/-)	-15.1	-35.0	-47.6	-57.0	-64.3	-71.1	-77.9	-84.0	-89.0
Fiscal Def. (DM,B)(+/-)	121.2	81.0	32.7	-14.8	-48.4	-54.4	-39.5	-9.4	28.8
Capacity Ratio (E/W)	0.11	0.13	0.16	0.19	0.22	0.23	0.24	0.25	0.26
M.P.Labor Ratio (E/W)	0.40	0.47	0.56	0.66	0.76	0.80	0.85	0.88	0.91
Excess E. German Unemp.(%)	17	14	11	8	5	4	3	2	2
UNITED STATES									
Real GDP (%)	0.3	0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2
Fixed Inv. (% of GDP)	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1
Priv. Cons. (% of GDP)	-0.3	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real Net Exp. (% of GDP)	0.7	0.8	0.7	0.7	0.7	0.6	0.6	0.5	0.5
Infl. Rate (PGNP) (+/-)	0.1	-0.0	-0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.15	0.17	0.12	0.07	0.04	0.03	0.02	0.02	0.02
L.t. Int. Rate (+/-)	0.07	0.06	0.04	0.04	0.04	0.04	0.05	0.06	0.07
Current Bal. (US$,B)(+/-)	6.4	8.3	7.4	6.6	6.6	6.6	6.5	6.6	7.3
JAPAN									
Real GDP (%)	0.0	0.0	-0.0	0.0	0.0	0.0	0.0	0.1	0.1
Fixed Inv. (% of GDP)	-0.0	-0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2
Priv. Cons. (% of GDP)	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Real Net Exp. (% of GDP)	0.1	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4
Infl. Rate (PGNP) (+/-)	-0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.01	-0.02	-0.05	-0.06	-0.07	-0.07	-0.07	-0.07	-0.07
L.t. Int. Rate (+/-)	-0.05	-0.06	-0.06	-0.06	-0.06	-0.06	-0.06	-0.05	-0.05
Nom. Exch. Rate (%,$/Yen)	-1.7	-1.6	-1.4	-1.2	-1.1	-1.1	-1.0	-0.9	-0.9
Current Bal. (US$,B)(+/-)	-5.9	-5.5	-8.5	-12.7	-16.9	-21.0	-24.6	-27.7	-30.0
REST OF WORLD									
Real GDP (%)	-0.0	-0.0	-0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3
Fixed Inv. (% of GDP)	-0.1	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4
Priv. Cons. (% of GDP)	-0.3	-0.5	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6
Real Net Exp. (% of GDP)	0.4	0.7	0.9	1.0	1.0	1.0	0.9	0.9	0.8
Infl. Rate (PGNP) (+/-)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.06	0.14	0.19	0.21	0.23	0.25	0.27	0.29	0.29
L.t. Int. Rate (+/-)	0.22	0.24	0.25	0.26	0.26	0.25	0.24	0.22	0.20
Nom. Exch. Rate (%,$/Row)	4.5	4.5	4.5	4.4	4.2	4.0	3.8	3.5	3.2
Current Bal. (US$,B)(+/-)	14.6	32.2	48.7	63.0	74.5	85.5	96.0	105.0	111.7

Percent (%) and absolute (+/-) deviations from baseline

Table A-5: Simulation with no Excess Unemployment in Eastern Germany

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	2.1	4.4	6.9	9.6	12.3	13.9	15.2	16.3	17.2
Fixed Inv. West (% of GDP)	-0.5	-0.8	-1.1	-1.3	-1.4	-1.4	-1.3	-1.1	-0.9
Fixed Inv. East (% of GDP)	1.9	3.8	5.7	7.7	9.5	10.2	10.6	10.6	10.3
Priv. Cons. (% of GDP)	2.9	4.3	5.3	6.1	6.8	7.4	7.9	8.4	8.8
Gov't Exp. (% of GDP)	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4
Real Net Exp. (% of GDP)	-3.1	-3.9	-4.2	-4.3	-4.1	-3.9	-3.7	-3.4	-3.0
Infl. Rate (PGNP) (+/-)	0.2	0.1	0.0	-0.0	0.0	0.1	0.0	-0.0	-0.1
S.t. Int. Rate (+/-)	0.44	0.69	0.79	0.78	0.76	0.83	0.86	0.84	0.76
L.t. Int. Rate (+/-)	0.74	0.75	0.72	0.67	0.61	0.54	0.46	0.36	0.26
Nom. Exch. Rate (%,$/DM)	13.0	12.6	11.9	11.1	10.3	9.4	8.5	7.5	6.7
Current Bal. (US$,B)(+/-)	-12.2	-30.1	-42.3	-52.1	-59.8	-66.8	-73.4	-79.0	-83.4
Fiscal Def. (DM,B)(+/-)	116.4	76.6	32.4	-10.3	-40.0	-44.5	-30.6	-3.3	30.9
Capacity Ratio (E/W)	0.12	0.14	0.17	0.20	0.23	0.24	0.25	0.26	0.27
M.P.Labor Ratio (E/W)	0.40	0.47	0.56	0.66	0.76	0.81	0.85	0.89	0.92
Excess E. German Unemp.(%)	0	0	0	0	0	0	0	0	0
UNITED STATES									
Real GDP (%)	0.3	0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2
Fixed Inv. (% of GDP)	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1
Priv. Cons. (% of GDP)	-0.3	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5
Real Net Exp. (% of GDP)	0.7	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5
Infl. Rate (PGNP) (+/-)	0.1	-0.0	-0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.13	0.15	0.09	0.04	0.00	-0.02	-0.03	-0.03	-0.03
L.t. Int. Rate (+/-)	0.03	0.01	0.00	-0.01	0.00	0.00	0.01	0.03	0.04
Current Bal. (US$,B)(+/-)	7.4	10.1	9.4	8.4	7.9	7.2	6.6	6.4	6.9
JAPAN									
Real GDP (%)	0.0	0.0	-0.0	0.0	0.0	0.0	0.0	0.1	0.1
Fixed Inv. (% of GDP)	-0.0	-0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2
Priv. Cons. (% of GDP)	0.0	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2
Real Net Exp. (% of GDP)	0.1	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4
Infl. Rate (PGNP) (+/-)	0.0	-0.0	-0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.02	-0.01	-0.03	-0.04	-0.04	-0.04	-0.03	-0.03	-0.03
L.t. Int. Rate (+/-)	-0.03	-0.03	-0.03	-0.03	-0.03	-0.02	-0.02	-0.01	-0.01
Nom. Exch. Rate (%,$/Yen)	-1.4	-1.3	-1.1	-1.1	-1.0	-1.0	-1.1	-1.1	-1.1
Current Bal. (US$,B)(+/-)	-5.2	-5.2	-8.2	-12.2	-16.2	-20.0	-23.4	-26.1	-28.1
REST OF WORLD									
Real GDP (%)	-0.1	-0.0	-0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.3
Fixed Inv. (% of GDP)	-0.1	-0.2	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4
Priv. Cons. (% of GDP)	-0.3	-0.5	-0.6	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6
Real Net Exp. (% of GDP)	0.3	0.6	0.8	0.9	0.9	0.9	0.9	0.8	0.7
Infl. Rate (PGNP) (+/-)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.00	0.05	0.11	0.15	0.18	0.20	0.22	0.23	0.23
L.t. Int. Rate (+/-)	0.16	0.18	0.20	0.20	0.20	0.20	0.19	0.18	0.16
Nom. Exch. Rate (%,$/Row)	4.1	4.2	4.2	4.1	4.0	3.8	3.6	3.3	3.1
Current Bal. (US$,B)(+/-)	10.0	25.2	41.1	55.9	68.2	79.6	90.2	98.7	104.6

Percent (%) and absolute (+/-) deviations from baseline

Table A-6: Simulation with Additional East-West Migration

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	1.3	3.4	6.0	8.8	11.6	13.3	14.6	15.7	16.7
Fixed Inv. West (% of GDP)	-0.2	-0.4	-0.4	-0.4	-0.3	-0.2	-0.1	-0.0	0.1
Fixed Inv. East (% of GDP)	1.5	3.1	4.7	6.4	7.9	8.6	8.9	8.9	8.8
Priv. Cons. (% of GDP)	2.7	4.1	5.2	6.1	6.9	7.5	8.0	8.4	8.9
Gov't Exp. (% of GDP)	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4
Real Net Exp. (% of GDP)	-3.6	-4.4	-4.7	-4.6	-4.4	-4.1	-3.8	-3.4	-3.1
Infl. Rate (PGNP) (+/-)	0.3	0.1	-0.0	-0.1	-0.0	0.0	-0.0	-0.1	-0.1
S.t. Int. Rate (+/-)	0.76	1.03	1.07	0.99	0.89	0.89	0.87	0.79	0.66
L.t. Int. Rate (+/-)	0.85	0.81	0.73	0.64	0.55	0.47	0.38	0.28	0.19
Nom. Exch. Rate (%,$/DM)	14.5	13.6	12.6	11.6	10.6	9.6	8.7	7.8	7.0
Current Bal. (US$,B)(+/-)	-14.9	-35.3	-48.6	-58.5	-65.9	-72.2	-78.1	-83.0	-86.9
Fiscal Def. (DM,B)(+/-)	143.5	133.0	114.2	85.3	51.0	21.8	-4.7	-28.1	-46.4
Capacity Ratio (E/W)	0.11	0.13	0.15	0.17	0.20	0.21	0.22	0.23	0.23
M.P.Labor Ratio (E/W)	0.40	0.47	0.56	0.66	0.76	0.81	0.85	0.88	0.91
Excess E. German Unemp.(%)	17	14	11	8	5	4	3	2	2
UNITED STATES									
Real GDP (%)	0.3	0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2
Fixed Inv. (% of GDP)	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1
Priv. Cons. (% of GDP)	-0.3	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5
Real Net Exp. (% of GDP)	0.7	0.8	0.7	0.7	0.7	0.6	0.6	0.5	0.5
Infl. Rate (PGNP) (+/-)	0.1	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	0.0
S.t. Int. Rate (+/-)	0.15	0.18	0.13	0.07	0.02	0.00	-0.02	-0.03	-0.03
L.t. Int. Rate (+/-)	0.04	0.02	0.00	-0.01	-0.02	-0.02	-0.02	-0.02	-0.01
Current Bal. (US$,B)(+/-)	6.9	9.0	8.0	6.9	6.6	6.5	6.6	7.3	8.8
JAPAN									
Real GDP (%)	0.0	0.0	-0.0	0.0	0.0	0.0	0.0	0.1	0.1
Fixed Inv. (% of GDP)	-0.0	-0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2
Priv. Cons. (% of GDP)	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.2
Real Net Exp. (% of GDP)	0.1	-0.0	-0.2	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4
Infl. Rate (PGNP) (+/-)	-0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.00	-0.03	-0.07	-0.08	-0.08	-0.08	-0.07	-0.07	-0.07
L.t. Int. Rate (+/-)	-0.06	-0.07	-0.07	-0.07	-0.06	-0.06	-0.05	-0.04	-0.04
Nom. Exch. Rate (%,$/Yen)	-2.1	-1.9	-1.7	-1.5	-1.4	-1.3	-1.3	-1.2	-1.2
Current Bal. (US$,B)(+/-)	-5.9	-5.2	-8.2	-12.4	-16.7	-20.6	-24.0	-26.6	-28.4
REST OF WORLD									
Real GDP (%)	-0.0	0.0	-0.0	-0.1	-0.1	-0.1	-0.2	-0.2	-0.3
Fixed Inv. (% of GDP)	-0.1	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.3
Priv. Cons. (% of GDP)	-0.3	-0.5	-0.7	-0.7	-0.7	-0.7	-0.7	-0.6	-0.6
Real Net Exp. (% of GDP)	0.4	0.7	0.9	1.0	1.0	1.0	0.9	0.8	0.7
Infl. Rate (PGNP) (+/-)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	-0.0	-0.0
S.t. Int. Rate (+/-)	0.05	0.13	0.20	0.23	0.25	0.25	0.26	0.26	0.24
L.t. Int. Rate (+/-)	0.21	0.22	0.22	0.21	0.20	0.18	0.16	0.14	0.11
Nom. Exch. Rate (%,$/Row)	4.5	4.5	4.5	4.4	4.2	3.9	3.7	3.4	3.1
Current Bal. (US$,B)(+/-)	13.9	31.5	48.8	64.1	76.0	86.3	95.5	102.3	106.5

Percent (%) and absolute (+/-) deviations from baseline

Table A-7: "Base case" Simulation with EMS Monetary Policy in Rest of World

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	0.9	2.6	5.1	7.9	10.6	12.3	13.5	14.6	15.5
Fixed Inv. West (% of GDP)	-0.7	-1.4	-1.9	-2.4	-2.6	-2.7	-2.6	-2.3	-1.9
Fixed Inv. East (% of GDP)	1.5	3.2	4.9	6.8	8.5	9.4	9.8	10.0	9.9
Priv. Cons. (% of GDP)	1.6	2.4	3.0	3.7	4.3	5.0	5.8	6.7	7.6
Gov't Exp. (% of GDP)	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4
Real Net Exp. (% of GDP)	-2.3	-2.6	-2.1	-1.5	-1.0	-0.8	-1.0	-1.4	-1.9
Infl. Rate (PGNP) (+/-)	0.1	0.1	0.2	0.3	0.3	0.2	0.1	-0.1	-0.2
S.t. Int. Rate (+/-)	0.34	0.47	0.74	1.10	1.48	1.82	2.00	1.98	1.81
L.t. Int. Rate (+/-)	1.33	1.42	1.46	1.44	1.35	1.21	1.00	0.77	0.52
Nom. Exch. Rate (%,$/DM)	16.0	15.6	15.3	14.8	13.9	12.7	11.2	9.6	7.9
Current Bal. (US$,B)(+/-)	-24.5	-36.1	-27.9	-10.3	8.6	22.2	27.2	23.2	10.8
Fiscal Def. (DM,B)(+/-)	126.8	81.7	28.2	-23.3	-59.0	-65.1	-47.9	-13.1	31.8
Capacity Ratio (E/W)	0.11	0.13	0.15	0.18	0.21	0.23	0.24	0.25	0.26
M.P.Labor Ratio (E/W)	0.40	0.47	0.55	0.64	0.74	0.79	0.83	0.86	0.89
Excess E. German Unemp.(%)	17	14	11	8	5	4	3	2	2
UNITED STATES									
Real GDP (%)	-0.1	-0.3	-0.3	-0.2	-0.2	-0.3	-0.4	-0.6	-0.7
Fixed Inv. (% of GDP)	-0.2	-0.4	-0.6	-0.7	-0.8	-0.9	-0.9	-0.8	-0.6
Priv. Cons. (% of GDP)	-0.9	-1.4	-1.7	-1.8	-1.9	-1.8	-1.7	-1.4	-1.2
Real Net Exp. (% of GDP)	1.0	1.4	1.9	2.3	2.5	2.5	2.2	1.7	1.2
Infl. Rate (PGNP) (+/-)	-0.0	0.0	0.1	0.1	0.1	0.0	-0.0	-0.0	-0.1
S.t. Int. Rate (+/-)	-0.01	0.00	0.11	0.28	0.43	0.51	0.52	0.48	0.40
L.t. Int. Rate (+/-)	0.30	0.33	0.34	0.34	0.31	0.27	0.22	0.16	0.12
Current Bal. (US$,B)(+/-)	-35.9	-11.4	26.9	68.3	104.3	129.0	140.3	138.7	125.6
JAPAN									
Real GDP (%)	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Fixed Inv. (% of GDP)	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.5	-0.5	-0.6
Priv. Cons. (% of GDP)	-0.4	-0.4	-0.5	-0.5	-0.5	-0.6	-0.6	-0.6	-0.5
Real Net Exp. (% of GDP)	0.6	0.5	0.4	0.5	0.7	0.9	1.0	1.1	1.0
Infl. Rate (PGNP) (+/-)	-0.1	-0.2	-0.1	0.1	0.1	0.1	0.1	0.1	0.0
S.t. Int. Rate (+/-)	0.04	-0.11	-0.23	-0.21	-0.11	0.02	0.13	0.20	0.25
L.t. Int. Rate (+/-)	0.03	0.05	0.09	0.13	0.17	0.19	0.20	0.18	0.16
Nom. Exch. Rate (%,$/Yen)	-3.7	-3.6	-3.3	-2.8	-2.2	-1.7	-1.3	-1.0	-0.8
Current Bal. (US$,B)(+/-)	-14.6	-13.8	-15.1	-9.8	2.9	20.5	39.6	56.8	69.5
REST OF WORLD									
Real GDP (%)	-3.9	-3.7	-3.0	-2.3	-1.7	-1.1	-0.6	-0.1	0.3
Fixed Inv. (% of GDP)	-1.2	-1.5	-1.2	-0.7	-0.2	0.3	0.7	0.9	1.0
Priv. Cons. (% of GDP)	-1.6	-1.1	0.0	1.0	1.6	1.7	1.5	1.1	0.6
Real Net Exp. (% of GDP)	-0.7	-1.0	-1.8	-2.6	-3.2	-3.3	-2.9	-2.2	-1.4
Infl. Rate (PGNP) (+/-)	-5.7	-3.2	-1.1	0.5	1.5	2.1	2.4	2.3	2.1
S.t. Int. Rate (+/-)	0.44	0.65	0.98	1.34	1.67	1.91	1.96	1.85	1.62
L.t. Int. Rate (+/-)	1.37	1.43	1.43	1.37	1.25	1.07	0.85	0.61	0.38
Nom. Exch. Rate (%,$/Row)	15.7	15.1	14.6	13.7	12.7	11.3	9.8	8.2	6.8
Current Bal. (US$,B)(+/-)	75.0	61.2	16.2	-48.2	-115.8	-171.6	-207.1	-218.8	-205.9

Percent (%) and absolute (+/-) deviations from baseline

Table A-8: Cut in German Government Consumption with EMS Monetary Regime

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	0.5	2.8	5.4	8.3	11.1	12.8	14.1	15.3	16.3
Fixed Inv. West (% of GDP)	-0.5	-0.9	-1.3	-1.6	-1.8	-1.8	-1.7	-1.4	-1.0
Fixed Inv. East (% of GDP)	1.6	3.2	5.0	6.9	8.7	9.6	10.0	10.2	10.1
Priv. Cons. (% of GDP)	2.2	3.4	4.3	5.1	6.0	6.7	7.5	8.4	9.2
Gov't Exp. (% of GDP)	0.7	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.2
Real Net Exp. (% of GDP)	-1.6	-1.8	-1.6	-1.3	-1.0	-1.0	-1.1	-1.4	-1.7
Infl. Rate (PGNP) (+/-)	0.1	0.2	0.3	0.2	0.2	0.1	0.0	-0.1	-0.2
S.t. Int. Rate (+/-)	0.23	0.47	0.83	1.16	1.44	1.69	1.79	1.73	1.54
L.t. Int. Rate (+/-)	1.22	1.29	1.32	1.28	1.18	1.03	0.84	0.63	0.42
Nom. Exch. Rate (%,$/DM)	11.0	10.9	10.6	9.9	8.9	7.8	6.4	5.0	3.7
Current Bal. (US$,B)(+/-)	-14.8	-22.4	-18.5	-9.0	0.9	6.8	6.8	0.9	-10.2
Fiscal Def. (DM,B)(+/-)	76.8	42.3	9.8	-17.5	-31.4	-22.9	-0.2	30.4	62.6
Capacity Ratio (E/W)	0.11	0.13	0.15	0.18	0.21	0.23	0.24	0.25	0.26
M.P.Labor Ratio (E/W)	0.40	0.47	0.55	0.65	0.74	0.79	0.83	0.87	0.90
Excess E. German Unemp.(%)	17	14	11	8	5	4	3	2	2
UNITED STATES									
Real GDP (%)	0.0	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	-0.5
Fixed Inv. (% of GDP)	-0.1	-0.3	-0.4	-0.5	-0.6	-0.6	-0.5	-0.5	-0.3
Priv. Cons. (% of GDP)	-0.6	-0.9	-1.1	-1.2	-1.2	-1.1	-0.9	-0.7	-0.5
Real Net Exp. (% of GDP)	0.8	1.1	1.4	1.6	1.7	1.5	1.2	0.8	0.4
Infl. Rate (PGNP) (+/-)	0.0	0.0	0.1	0.1	0.1	0.0	-0.0	-0.0	-0.0
S.t. Int. Rate (+/-)	0.04	0.07	0.16	0.27	0.36	0.41	0.40	0.36	0.30
L.t. Int. Rate (+/-)	0.26	0.28	0.28	0.27	0.25	0.22	0.18	0.14	0.10
Current Bal. (US$,B)(+/-)	-23.3	-5.9	19.4	45.1	65.7	77.4	79.4	72.1	57.1
JAPAN									
Real GDP (%)	0.1	-0.0	-0.0	0.0	0.0	0.1	0.0	0.0	-0.0
Fixed Inv. (% of GDP)	-0.0	0.0	0.0	0.0	-0.0	-0.1	-0.1	-0.2	-0.2
Priv. Cons. (% of GDP)	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.0
Real Net Exp. (% of GDP)	0.2	0.1	0.0	0.0	0.1	0.2	0.3	0.3	0.2
Infl. Rate (PGNP) (+/-)	-0.1	-0.1	-0.0	0.1	0.1	0.1	0.1	0.0	0.0
S.t. Int. Rate (+/-)	-0.02	-0.11	-0.15	-0.11	-0.02	0.08	0.15	0.19	0.20
L.t. Int. Rate (+/-)	0.04	0.06	0.08	0.09	0.10	0.09	0.07	0.04	0.00
Nom. Exch. Rate (%,$/Yen)	0.6	0.6	0.8	1.0	1.2	1.3	1.4	1.5	1.4
Current Bal. (US$,B)(+/-)	-8.0	-10.2	-12.6	-10.5	-3.9	5.4	15.0	22.8	27.3
REST OF WORLD									
Real GDP (%)	-2.7	-2.5	-2.0	-1.5	-1.1	-0.7	-0.3	0.1	0.4
Fixed Inv. (% of GDP)	-0.8	-1.0	-0.8	-0.5	-0.2	0.1	0.4	0.5	0.5
Priv. Cons. (% of GDP)	-1.1	-0.7	-0.1	0.5	0.8	0.8	0.6	0.3	-0.1
Real Net Exp. (% of GDP)	-0.5	-0.7	-1.1	-1.6	-1.8	-1.7	-1.3	-0.7	-0.1
Infl. Rate (PGNP) (+/-)	-3.5	-1.9	-0.4	0.6	1.3	1.7	1.8	1.7	1.5
S.t. Int. Rate (+/-)	0.38	0.67	1.01	1.30	1.54	1.70	1.70	1.56	1.34
L.t. Int. Rate (+/-)	1.23	1.27	1.25	1.17	1.05	0.88	0.68	0.47	0.27
Nom. Exch. Rate (%,$/Row)	10.7	10.4	9.8	8.9	7.8	6.5	5.2	3.9	2.8
Current Bal. (US$,B)(+/-)	46.1	38.4	11.7	-25.6	-62.7	-89.6	-101.2	-95.9	-74.2

Percent (%) and absolute (+/-) deviations from baseline

Table A-9: Accomodative Monetary Policy in Germany with EMS Monetary Regime

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	1.6	3.4	5.8	8.6	11.3	13.0	14.0	14.7	15.5
Fixed Inv. West (% of GDP)	-0.5	-1.0	-1.5	-1.8	-2.0	-2.1	-2.1	-1.9	-1.7
Fixed Inv. East (% of GDP)	1.6	3.2	5.0	6.9	8.7	9.5	9.9	10.0	9.9
Priv. Cons. (% of GDP)	2.1	3.0	3.8	4.5	5.2	5.8	6.4	7.0	7.8
Gov't Exp. (% of GDP)	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4
Real Net Exp. (% of GDP)	-2.3	-2.8	-2.7	-2.3	-2.0	-1.8	-1.8	-2.1	-2.3
Infl. Rate (PGNP) (+/-)	1.3	0.8	0.5	0.2	-0.1	-0.4	-0.6	-0.7	-0.6
S.t. Int. Rate (+/-)	1.24	1.13	0.73	0.70	0.69	0.31	0.39	0.82	1.40
L.t. Int. Rate (+/-)	0.88	0.85	0.81	0.79	0.75	0.69	0.64	0.57	0.45
Nom. Exch. Rate (%,$/DM)	13.7	12.2	11.0	10.2	9.6	9.1	9.1	8.8	8.0
Current Bal. (US$,B)(+/-)	-20.0	-32.3	-30.3	-21.5	-12.3	-6.0	-5.1	-11.2	-22.3
Fiscal Def. (DM,B)(+/-)	131.8	88.4	34.1	-15.5	-50.3	-60.0	-42.2	-7.1	34.6
Capacity Ratio (E/W)	0.11	0.13	0.15	0.18	0.21	0.23	0.24	0.25	0.26
M.P.Labor Ratio (E/W)	0.40	0.47	0.55	0.65	0.74	0.79	0.83	0.87	0.90
Excess E. German Unemp.(%)	17	14	11	8	5	4	3	2	2
UNITED STATES									
Real GDP (%)	0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.3	-0.4	-0.5
Fixed Inv. (% of GDP)	-0.2	-0.3	-0.4	-0.5	-0.6	-0.6	-0.6	-0.5	-0.4
Priv. Cons. (% of GDP)	-0.8	-1.1	-1.3	-1.4	-1.4	-1.4	-1.3	-1.1	-1.0
Real Net Exp. (% of GDP)	1.0	1.3	1.6	1.8	1.9	1.8	1.6	1.3	1.0
Infl. Rate (PGNP) (+/-)	-0.0	0.0	0.1	0.1	0.1	0.0	0.0	-0.0	-0.0
S.t. Int. Rate (+/-)	-0.01	-0.03	0.01	0.11	0.20	0.26	0.27	0.25	0.21
L.t. Int. Rate (+/-)	0.14	0.16	0.17	0.18	0.17	0.15	0.12	0.09	0.06
Current Bal. (US$,B)(+/-)	-23.4	-0.8	27.7	55.1	76.5	88.3	90.7	87.1	79.4
JAPAN									
Real GDP (%)	0.1	-0.0	-0.0	0.0	0.0	0.1	0.0	0.0	-0.1
Fixed Inv. (% of GDP)	-0.0	0.0	0.1	0.1	0.0	-0.1	-0.2	-0.3	-0.4
Priv. Cons. (% of GDP)	-0.3	-0.2	-0.2	-0.2	-0.2	-0.3	-0.4	-0.4	-0.4
Real Net Exp. (% of GDP)	0.4	0.2	0.1	0.1	0.2	0.4	0.6	0.7	0.7
Infl. Rate (PGNP) (+/-)	-0.1	-0.1	0.0	0.1	0.2	0.1	0.1	0.0	0.0
S.t. Int. Rate (+/-)	-0.10	-0.23	-0.26	-0.17	-0.02	0.12	0.22	0.27	0.28
L.t. Int. Rate (+/-)	0.04	0.07	0.12	0.16	0.19	0.20	0.19	0.17	0.14
Nom. Exch. Rate (%,$/Yen)	-1.1	-0.9	-0.7	-0.5	-0.3	-0.3	-0.4	-0.6	-0.8
Current Bal. (US$,B)(+/-)	-10.1	-10.9	-14.7	-13.6	-6.9	3.4	15.7	27.8	37.0
REST OF WORLD									
Real GDP (%)	-3.0	-2.6	-1.8	-1.2	-0.8	-0.6	-0.4	-0.3	-0.1
Fixed Inv. (% of GDP)	-0.9	-1.1	-0.8	-0.4	-0.0	0.3	0.5	0.6	0.6
Priv. Cons. (% of GDP)	-1.2	-0.8	0.0	0.6	0.9	1.0	0.7	0.4	0.1
Real Net Exp. (% of GDP)	-0.6	-0.6	-1.0	-1.5	-1.8	-1.9	-1.7	-1.3	-0.8
Infl. Rate (PGNP) (+/-)	-3.9	-2.1	-0.7	0.2	0.7	1.0	1.1	1.2	1.3
S.t. Int. Rate (+/-)	1.14	0.93	0.66	0.66	0.54	0.37	0.67	1.07	1.37
L.t. Int. Rate (+/-)	0.85	0.82	0.79	0.76	0.71	0.65	0.59	0.49	0.34
Nom. Exch. Rate (%,$/Row)	12.8	11.5	10.5	9.8	9.2	8.9	8.6	8.0	7.0
Current Bal. (US$,B)(+/-)	53.5	44.0	17.2	-20.1	-57.3	-85.7	-101.4	-103.7	-94.2

Percent (%) and absolute (+/-) deviations from baseline

Table A-10: Tax Increase in Germany with EMS Monetary Regime

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	0.8	2.6	5.1	7.9	10.7	12.3	13.6	14.6	15.5
Fixed Inv. West (% of GDP)	-0.7	-1.4	-1.9	-2.3	-2.6	-2.7	-2.6	-2.3	-1.8
Fixed Inv. East (% of GDP)	1.5	3.2	4.9	6.8	8.5	9.4	9.8	10.0	9.9
Priv. Cons. (% of GDP)	1.5	2.3	3.0	3.6	4.3	5.0	5.8	6.7	7.7
Gov't Exp. (% of GDP)	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4
Real Net Exp. (% of GDP)	-2.3	-2.6	-2.1	-1.4	-1.0	-0.8	-1.0	-1.4	-1.9
Infl. Rate (PGNP) (+/-)	0.1	0.1	0.3	0.3	0.3	0.2	0.1	-0.1	-0.2
S.t. Int. Rate (+/-)	0.25	0.38	0.70	1.12	1.53	1.89	2.06	2.03	1.83
L.t. Int. Rate (+/-)	1.33	1.43	1.47	1.46	1.37	1.21	1.00	0.75	0.51
Nom. Exch. Rate (%,$/DM)	16.0	15.9	15.6	15.1	14.1	12.9	11.2	9.5	7.9
Current Bal. (US$,B)(+/-)	-24.2	-35.5	-27.1	-9.5	9.3	22.7	27.5	23.3	10.6
Fiscal Def. (DM,B)(+/-)	76.5	41.8	7.3	-22.0	-36.8	-27.4	-2.7	30.5	65.5
Capacity Ratio (E/W)	0.11	0.13	0.15	0.18	0.21	0.23	0.24	0.25	0.26
M.P.Labor Ratio (E/W)	0.40	0.47	0.55	0.64	0.74	0.79	0.83	0.86	0.89
Excess E. German Unemp.(%)	17	14	11	8	5	4	3	2	2
UNITED STATES									
Real GDP (%)	-0.1	-0.3	-0.2	-0.2	-0.2	-0.3	-0.4	-0.6	-0.7
Fixed Inv. (% of GDP)	-0.2	-0.4	-0.6	-0.7	-0.8	-0.9	-0.9	-0.8	-0.6
Priv. Cons. (% of GDP)	-0.9	-1.4	-1.7	-1.8	-1.9	-1.8	-1.7	-1.5	-1.2
Real Net Exp. (% of GDP)	1.0	1.4	2.0	2.4	2.6	2.5	2.2	1.7	1.2
Infl. Rate (PGNP) (+/-)	-0.0	0.0	0.1	0.1	0.1	0.0	-0.0	-0.0	-0.1
S.t. Int. Rate (+/-)	-0.01	0.00	0.12	0.30	0.44	0.52	0.53	0.48	0.40
L.t. Int. Rate (+/-)	0.31	0.33	0.35	0.34	0.31	0.27	0.21	0.15	0.11
Current Bal. (US$,B)(+/-)	-36.2	-11.4	27.6	69.8	106.3	131.1	142.3	140.3	126.5
JAPAN									
Real GDP (%)	0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Fixed Inv. (% of GDP)	-0.1	-0.1	-0.1	-0.2	-0.2	-0.4	-0.5	-0.5	-0.6
Priv. Cons. (% of GDP)	-0.4	-0.5	-0.5	-0.5	-0.5	-0.6	-0.6	-0.6	-0.5
Real Net Exp. (% of GDP)	0.6	0.5	0.4	0.5	0.7	0.9	1.0	1.1	1.0
Infl. Rate (PGNP) (+/-)	-0.1	-0.2	-0.1	0.1	0.1	0.1	0.1	0.1	0.0
S.t. Int. Rate (+/-)	0.04	-0.10	-0.22	-0.20	-0.10	0.03	0.14	0.22	0.27
L.t. Int. Rate (+/-)	0.04	0.06	0.10	0.15	0.18	0.20	0.20	0.19	0.16
Nom. Exch. Rate (%,$/Yen)	-3.7	-3.6	-3.3	-2.8	-2.3	-1.8	-1.3	-1.0	-0.9
Current Bal. (US$,B)(+/-)	-14.6	-13.8	-14.9	-9.3	3.7	21.4	40.6	57.7	70.2
REST OF WORLD									
Real GDP (%)	-3.9	-3.7	-3.0	-2.3	-1.7	-1.2	-0.6	-0.1	0.3
Fixed Inv. (% of GDP)	-1.2	-1.5	-1.2	-0.7	-0.2	0.3	0.7	0.9	1.0
Priv. Cons. (% of GDP)	-1.6	-1.1	0.0	1.0	1.6	1.7	1.5	1.1	0.6
Real Net Exp. (% of GDP)	-0.7	-1.0	-1.8	-2.7	-3.2	-3.3	-2.9	-2.2	-1.3
Infl. Rate (PGNP) (+/-)	-5.8	-3.3	-1.1	0.5	1.5	2.2	2.4	2.4	2.1
S.t. Int. Rate (+/-)	0.36	0.60	0.97	1.37	1.73	1.97	2.01	1.88	1.63
L.t. Int. Rate (+/-)	1.38	1.44	1.45	1.38	1.25	1.07	0.84	0.59	0.36
Nom. Exch. Rate (%,$/Row)	15.7	15.4	14.9	14.0	12.8	11.4	9.8	8.2	6.7
Current Bal. (US$,B)(+/-)	75.1	60.6	14.4	-51.0	-119.2	-175.2	-210.4	-221.3	-207.3

Percent (%) and absolute (+/-) deviations from baseline

Table A-11: Wage Subsidy in Eastern Germany with EMS Monetary Regime

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	1.5	3.5	5.9	8.6	11.4	12.8	14.1	15.3	16.4
Fixed Inv. West (% of GDP)	-0.6	-1.1	-1.4	-1.6	-1.6	-1.6	-1.4	-1.2	-0.9
Fixed Inv. East (% of GDP)	1.6	3.3	5.2	7.2	9.0	9.8	10.2	10.3	10.1
Priv. Cons. (% of GDP)	3.2	4.6	5.5	6.3	6.9	7.1	7.6	8.1	8.6
Gov't Exp. (% of GDP)	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4
Real Net Exp. (% of GDP)	-3.5	-4.4	-4.6	-4.6	-4.4	-4.1	-3.9	-3.7	-3.3
Infl. Rate (PGNP) (+/-)	0.3	0.1	-0.0	-0.1	-0.1	0.0	0.0	-0.0	-0.0
S.t. Int. Rate (+/-)	0.73	0.96	0.98	0.87	0.76	0.76	0.80	0.81	0.77
L.t. Int. Rate (+/-)	0.81	0.80	0.75	0.69	0.63	0.56	0.49	0.40	0.30
Nom. Exch. Rate (%,$/DM)	14.0	13.4	12.5	11.7	10.9	10.1	9.3	8.5	7.6
Current Bal. (US$,B)(+/-)	-14.6	-34.8	-47.9	-57.7	-64.9	-71.5	-78.3	-85.0	-91.0
Fiscal Def. (DM,B)(+/-)	170.0	127.8	70.6	7.8	-44.4	-138.6	-133.0	-94.3	-31.8
Capacity Ratio (E/W)	0.11	0.13	0.16	0.19	0.22	0.23	0.24	0.25	0.26
M.P.Labor Ratio (E/W)	0.40	0.47	0.55	0.65	0.75	0.80	0.84	0.87	0.91
Excess E. German Unemp.(%)	13	10	8	5	3	4	3	2	2
UNITED STATES									
Real GDP (%)	0.3	0.1	-0.1	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2
Fixed Inv. (% of GDP)	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1
Priv. Cons. (% of GDP)	-0.3	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6
Real Net Exp. (% of GDP)	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.5
Infl. Rate (PGNP) (+/-)	0.1	-0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.14	0.15	0.09	0.04	0.00	-0.01	-0.01	-0.01	-0.01
L.t. Int. Rate (+/-)	0.04	0.02	0.01	0.00	0.00	0.00	0.01	0.02	0.03
Current Bal. (US$,B)(+/-)	7.0	8.7	7.4	6.6	6.8	7.3	7.8	8.4	9.2
JAPAN									
Real GDP (%)	0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0	0.0	0.1
Fixed Inv. (% of GDP)	-0.0	-0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2
Priv. Cons. (% of GDP)	0.0	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.2
Real Net Exp. (% of GDP)	0.1	-0.0	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4
Infl. Rate (PGNP) (+/-)	0.0	-0.0	-0.0	0.0	0.0	0.0	0.0	-0.0	-0.0
S.t. Int. Rate (+/-)	0.02	-0.01	-0.04	-0.05	-0.05	-0.04	-0.04	-0.05	-0.05
L.t. Int. Rate (+/-)	-0.04	-0.04	-0.05	-0.05	-0.05	-0.05	-0.05	-0.04	-0.04
Nom. Exch. Rate (%,$/Yen)	-2.2	-2.1	-1.9	-1.7	-1.6	-1.5	-1.5	-1.5	-1.4
Current Bal. (US$,B)(+/-)	-6.1	-5.6	-8.6	-12.5	-16.4	-20.1	-23.6	-26.8	-29.4
REST OF WORLD									
Real GDP (%)	0.0	0.0	0.0	-0.1	-0.2	-0.2	-0.2	-0.2	-0.2
Fixed Inv. (% of GDP)	-0.1	-0.2	-0.3	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4
Priv. Cons. (% of GDP)	-0.3	-0.5	-0.6	-0.7	-0.8	-0.7	-0.7	-0.7	-0.6
Real Net Exp. (% of GDP)	0.4	0.7	0.9	1.0	1.0	0.9	0.9	0.9	0.8
Infl. Rate (PGNP) (+/-)	0.1	0.1	0.0	0.0	-0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.05	0.13	0.19	0.20	0.20	0.19	0.20	0.22	0.23
L.t. Int. Rate (+/-)	0.18	0.20	0.21	0.21	0.21	0.20	0.19	0.18	0.17
Nom. Exch. Rate (%,$/Row)	4.2	4.4	4.5	4.5	4.4	4.1	3.8	3.5	3.2
Current Bal. (US$,B)(+/-)	13.7	31.7	49.1	63.6	74.5	84.2	94.1	103.3	111.2

Percent (%) and absolute (+/-) deviations from baseline

Table A-12: Capital Subsidy in Eastern Germany with EMS Monetary Regime

	1991	1992	1993	1994	1995	1996	1997	1998	1999
GERMANY									
Real GDP (%)	1.2	3.2	5.8	8.8	11.8	13.4	14.8	16.0	17.0
Fixed Inv. West (% of GDP)	-0.6	-1.1	-1.4	-1.6	-1.7	-1.6	-1.4	-1.1	-0.9
Fixed Inv. East (% of GDP)	1.9	3.9	6.0	8.1	9.9	10.6	10.7	10.6	10.3
Priv. Cons. (% of GDP)	2.7	4.0	5.0	5.9	6.7	7.1	7.6	8.2	8.7
Gov't Exp. (% of GDP)	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.3	3.4
Real Net Exp. (% of GDP)	-3.7	-4.6	-4.9	-4.8	-4.6	-4.3	-3.9	-3.5	-3.0
Infl. Rate (PGNP) (+/-)	0.3	0.2	0.1	-0.0	-0.1	-0.1	-0.1	-0.1	-0.1
S.t. Int. Rate (+/-)	0.68	1.01	1.17	1.18	1.10	1.01	0.94	0.86	0.76
L.t. Int. Rate (+/-)	0.93	0.92	0.86	0.77	0.67	0.56	0.46	0.35	0.25
Nom. Exch. Rate (%,$/DM)	15.0	14.3	13.2	12.0	10.8	9.6	8.5	7.6	6.7
Current Bal. (US$,B)(+/-)	-15.2	-36.5	-50.8	-62.0	-70.2	-76.5	-81.8	-86.1	-89.6
Fiscal Def. (DM,B)(+/-)	121.5	85.2	45.1	7.8	-15.4	-69.6	-63.9	-37.6	2.7
Capacity Ratio (E/W)	0.11	0.13	0.16	0.19	0.22	0.24	0.25	0.26	0.27
M.P.Labor Ratio (E/W)	0.40	0.48	0.57	0.67	0.77	0.82	0.86	0.90	0.93
Excess E. German Unemp.(%)	17	14	11	7	5	4	3	2	1
UNITED STATES									
Real GDP (%)	0.3	0.1	-0.0	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2
Fixed Inv. (% of GDP)	-0.1	-0.1	-0.2	-0.2	-0.2	-0.2	-0.1	-0.1	-0.1
Priv. Cons. (% of GDP)	-0.4	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.5
Real Net Exp. (% of GDP)	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5
Infl. Rate (PGNP) (+/-)	0.1	-0.0	-0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.15	0.18	0.12	0.06	0.02	0.00	-0.01	-0.01	0.00
L.t. Int. Rate (+/-)	0.05	0.04	0.02	0.01	0.01	0.02	0.02	0.03	0.05
Current Bal. (US$,B)(+/-)	6.8	9.0	7.8	6.3	5.4	4.7	4.6	5.3	6.7
JAPAN									
Real GDP (%)	0.0	0.0	-0.0	0.0	0.0	0.0	0.1	0.1	0.1
Fixed Inv. (% of GDP)	-0.0	-0.0	0.0	0.1	0.2	0.2	0.2	0.3	0.3
Priv. Cons. (% of GDP)	0.0	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Real Net Exp. (% of GDP)	0.1	-0.1	-0.2	-0.4	-0.4	-0.5	-0.5	-0.5	-0.4
Infl. Rate (PGNP) (+/-)	-0.0	-0.0	-0.0	-0.0	0.0	0.0	0.0	0.0	0.0
S.t. Int. Rate (+/-)	0.01	-0.02	-0.06	-0.08	-0.09	-0.08	-0.08	-0.08	-0.07
L.t. Int. Rate (+/-)	-0.06	-0.07	-0.07	-0.07	-0.07	-0.06	-0.06	-0.05	-0.04
Nom. Exch. Rate (%,$/Yen)	-1.7	-1.6	-1.4	-1.2	-1.1	-1.0	-0.9	-0.9	-0.8
Current Bal. (US$,B)(+/-)	-5.9	-5.7	-9.3	-14.1	-19.1	-23.5	-27.3	-30.4	-32.5
REST OF WORLD									
Real GDP (%)	-0.1	-0.0	-0.0	-0.1	-0.1	-0.2	-0.2	-0.3	-0.3
Fixed Inv. (% of GDP)	-0.1	-0.2	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Priv. Cons. (% of GDP)	-0.4	-0.6	-0.7	-0.8	-0.8	-0.8	-0.8	-0.7	-0.6
Real Net Exp. (% of GDP)	0.4	0.8	1.0	1.1	1.1	1.1	1.0	0.9	0.7
Infl. Rate (PGNP) (+/-)	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	-0.0
S.t. Int. Rate (+/-)	0.05	0.13	0.21	0.26	0.28	0.29	0.29	0.29	0.28
L.t. Int. Rate (+/-)	0.23	0.25	0.26	0.26	0.25	0.24	0.22	0.20	0.17
Nom. Exch. Rate (%,$/Row)	4.6	4.7	4.7	4.6	4.3	4.1	3.7	3.4	3.1
Current Bal. (US$,B)(+/-)	14.4	33.3	52.4	69.8	83.9	95.3	104.5	111.2	115.5

Percent (%) and absolute (+/-) deviations from baseline