

# Inter-temporal Savings, Current Account Trends and Asymmetric Shocks in a Heterogeneous European Monetary Union

This paper contributes to the discussion on the European current account imbalances by analysing the intra-European trends since 1990 based on the theory of optimum currency areas. The authors show that German unification was the origin of not only the 1992-93 EMS crisis but also rising intra-European current account imbalances since 1999 that led to the European debt crisis. They argue that a reduced German current account surplus is in the interest of German taxpayers to contain financial risk, but that it would also impose austerity on the rest of Europe unless money supply expands even further.

The Greek euro tragedy and the Irish debt crisis have revived the discussion on the optimal adjustment to asymmetric shocks in a heterogeneous currency area. In the current discussion, the benefits of macroeconomic stability<sup>1</sup> and lower transaction costs for intra-EMU factor movements<sup>2</sup> have been overshadowed by the costs in the form of lost monetary policy independence as an adjustment tool for asymmetric shocks.<sup>3</sup> While one side has proposed Greece's exit from the EMU to prevent a supranational transfer union<sup>4</sup>, the European Commission<sup>5</sup> urges Greece to impose austerity in private and public spending to cure the real overvaluation of the ailing Greek currency. To prevent further imbalances, the French Finance Minister Lagarde has prompted Germany to reduce its current account surplus by raising wages and consumption.<sup>6</sup> In contrast, the German Chancellor Merkel highlights the importance of exports for the German growth model.

To analyse the consequences of the current policy propositions on the intra-European current account imbalances, we trace their origins back to the 1990s, when

German unification constituted an asymmetric shock to Europe. It will be argued that the legacy of German unification remains a major cause of the current divergence of European current accounts and thereby the current debt crisis. It will be shown that the channels of adjustment to asymmetric shocks in the European (Monetary) Union go far beyond Mundell's<sup>7</sup> seminal theory of optimum currency areas, extending to capital markets, fiscal policies and monetary policy.

Based on this finding it will be argued that the French policy proposition to restrict German current account surpluses is in the interest of German savers and taxpayers, as international risk exposure would be reduced. However, the policy tools available to the German authorities to scale down the current account surplus are limited because of the European institutional framework. Furthermore, if a reduction in the German current account surplus could be achieved based on expansionary wage and/or fiscal policies, this may not be in the interest of its neighbours. Such a reduction could impose austerity on the rest of Europe unless, as the likelihood of a new wave of crisis increases, the European Central Bank feels the urge to engineer a new round of monetary expansion.

## Inter-temporal Savings and the German Unification Shock

German unification is a textbook case of the advantage of inter-temporal savings in a heterogeneous currency area. Before unification, West Germany traditionally generated large savings and current account surpluses through its highly productive export industry (Figure 1). The result-

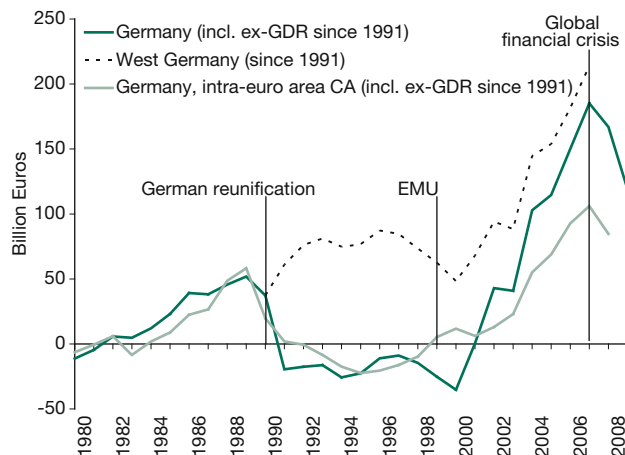
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\*\* University of Leipzig, Germany.

- 1 R. McKinnon: Optimum Currency Areas, in: *American Economic Review*, Vol. 53, 1963, pp. 717-725.
- 2 European Commission: One Market, One Money: An Evaluation of the Potential Benefits and Costs of Forming an Economic and Monetary Union, in: *European Economy*, No. 44, 1990.
- 3 R. Mundell: A Theory of Optimum Currency Areas, in: *American Economic Review*, Vol. 51, 1961, No. 4, pp. 657-665.
- 4 *Frankfurter Allgemeine Zeitung*: Aus der Währungsunion wird eine Inflationsunion, 22.4.2010.
- 5 European Commission: Surveillance of Intra-Euro-Area Competitiveness and Imbalances, in: *European Economy*, No. 1, 2010.
- 6 *Frankfurter Allgemeine Zeitung*: Frankreichs Finanzministerin lässt es nicht, 31.8.2010.

7 R. Mundell, op. cit.

**Figure 1**  
**German Current Account Balance in Billion Euros**  
 (1980-2009)



Source: Eurostat, Bundesbank and Destatis, own calculations based on regional national account figures.

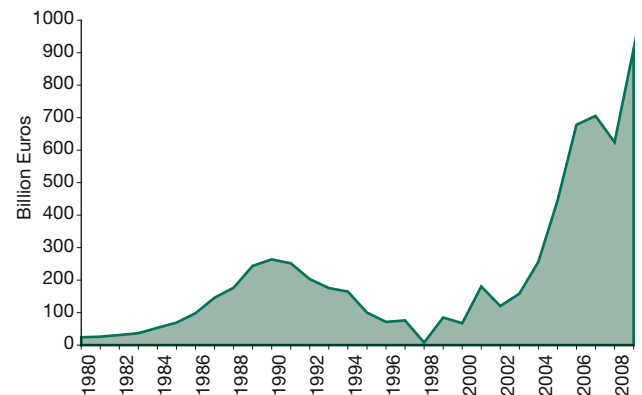
ing net capital exports led to a gradual build-up of international assets, *inter alia* versus its European partners. From 1980 to 1990, West Germany's net international assets increased from €24 billion to roughly €250 billion euros, as shown in Figure 2. When the asymmetric unification shock hit in 1990, West Germany's international assets could be repatriated to meet the immense financing needs for rebuilding the new eastern part of unified Germany.

As a result, the current account balance of unified Germany swung from a €40 billion surplus in 1990 to a €20 billion deficit in 1991, while the West German current account balance increased further to a surplus of around €60 billion (Figure 1). There were therefore three main sources for the macroeconomic financing of unification. First, the current account surplus of West Germany increased. Second, the West German current account surplus was redirected from West Germany's (European) trading partners towards East Germany. Third, West German international assets were repatriated. German net international assets declined from €250 billion in 1990 to close to zero in 1998 (Figure 2).

The German unification shock constituted a textbook asymmetric shock as defined by Mundell<sup>1</sup>, as Germany boomed whereas its neighbours were in recession. In contrast to Mundell, the shock spread over Europe primarily via capital markets (rather than goods markets). As German net capital exports were turned into net capital imports overnight, German capital supply in European capi-

1 Ibid.

**Figure 2**  
**German Net International Investment Position in Billion Euros**  
 (1980-2009)



Source: IMF.

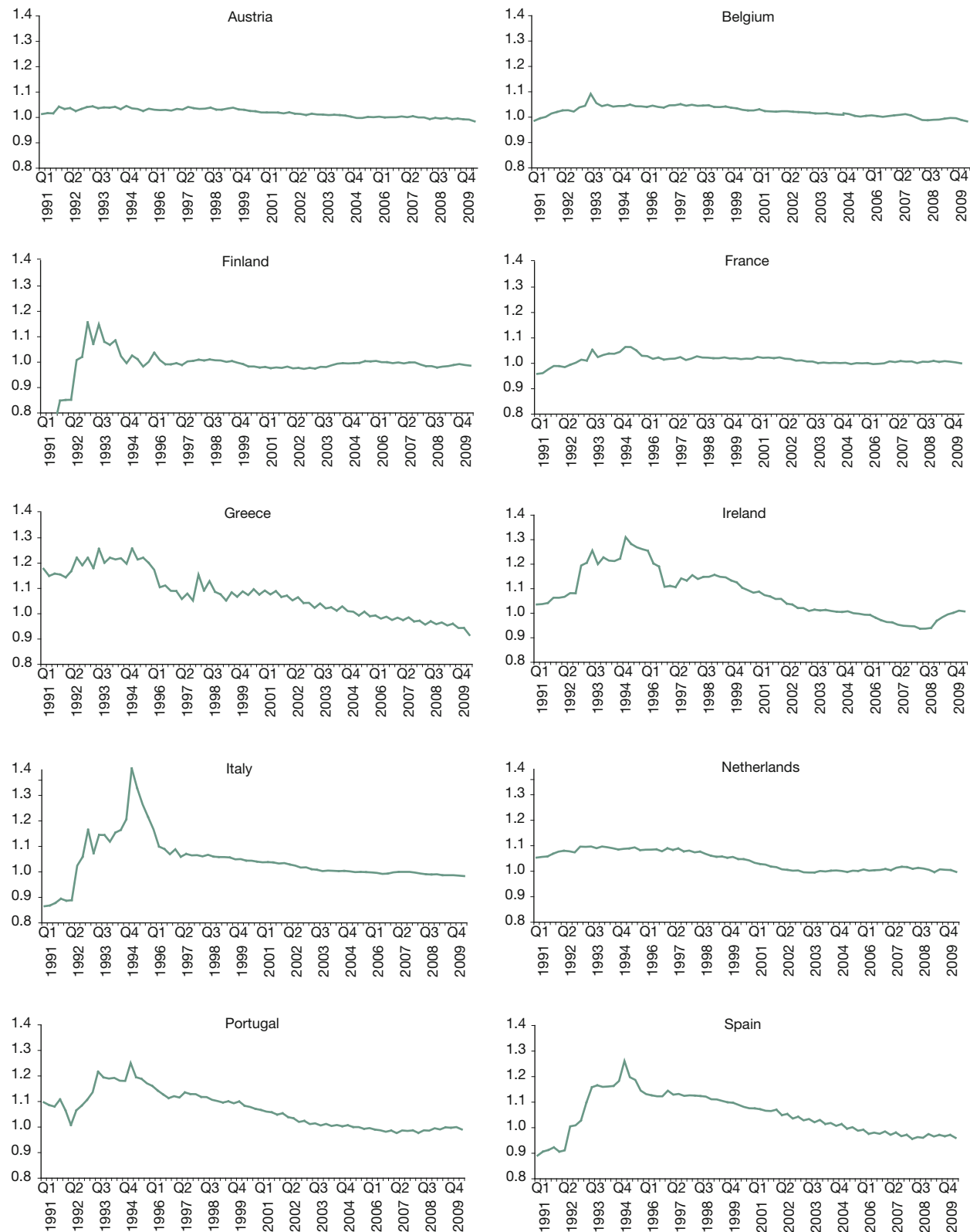
tal markets dried up and the German mark came under appreciation pressure. In the European Monetary System of the early 1990s, which aimed to keep nominal exchange rates between the European currencies fixed, interest rates increased. Currencies other than the mark came under depreciation pressure, and the central banks (other than the German Bundesbank) lost foreign reserves.

This process was further compounded when the German Bundesbank tightened money supply to contain inflationary pressure. Many European countries were dragged even deeper into recession while Germany enjoyed its unification boom. EMS members which were regarded as unwilling to follow the German monetary policy stance – such as the United Kingdom and Italy – became victims of speculative attacks and currency crises.

The crisis of the European Monetary System was resolved by realignments of the EMS central parities and by widening the EMS bandwidths. In Figure 3 the real exchange rate against the mark is defined as national euros per German euros. The exchange rate realignment is clearly visible for Finland, Greece, Ireland, Italy, Portugal and Spain. That solution conforms to Mundell's model<sup>2</sup>: he argued that, given price and wage stickiness, exchange rate adjustments are necessary to cope with asymmetric shocks. He also argued that the depreciation of the recession country's currency is welcomed by the booming country, as the appreciation helps to reduce inflationary pressure. In practice, in the short term the appreciation of the Ger-

2 Ibid.

**Figure 3**  
**Bilateral Real Exchange Rates Against Germany Based on CPI**  
 (National Euro per German Euro)



Source: IMF. Bilateral real exchange rates in national currency per German mark are converted by national EMU entry exchange rates.

**Figure 4**  
**German Real Effective Exchange Rate**  
(ULC-based)



Source: IMF. The real effective exchange rate also includes non-EU trading partners.

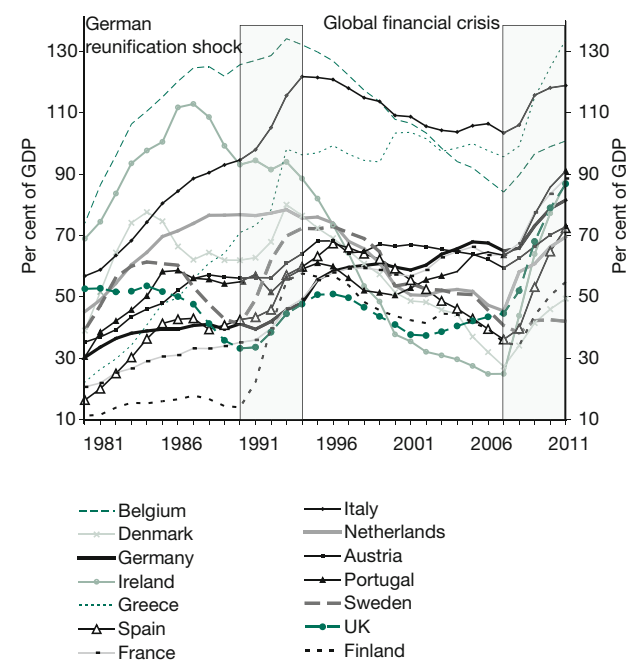
man mark only partially contained the inflation arising from the unification boom.

Yet as the demand for German products declined, Germany followed the United Kingdom and other European partner countries into the recession. The real appreciation of the German mark – which was caused by the realignments against the EMS-crisis currencies, rising inflation in Germany and an appreciation of the German mark against the dollar (and those currencies pegged to the dollar) – became a drag on German exports. The German mark's real appreciation and wage increases which were higher than productivity increases eroded Germany's traditionally strong international competitiveness. They turned the German current account balance negative for a long period. This trend is particularly visible if the German mark's real effective exchange rate is calculated based on unit labour costs (ULC), as in Figure 4. When in the mid-1990s the turmoil of the German unification shock and the EMS crisis had settled down and growth in the European Union had resumed, government debt in Germany (as well as in most European countries) had substantially increased (Figure 5). Germany had become plagued by the legacy of the unification boom in the form of high unit labour costs, high public debt and high unemployment.

### Intra-German Adjustment to the Unification Shock

The economic consequences of the German unification process were not only perpetuated by an asymmetric shock across Europe but also within Germany, as East German demand suddenly shifted from East German products to West German products. The political environment of German unification did not allow for an adjustment

**Figure 5**  
**Gross Public Debt in Per Cent of GDP**



Source: IMF.

via exchange rates as Mundell<sup>3</sup> had proposed. In the German monetary union, the nominal exchange rate for East German cash, bank deposits, wages and pensions was fixed far above the market rate at 1:1 up to 4000 marks per person.<sup>4</sup> By then, the market exchange rate between the West and East German mark was assessed at around 1:10.<sup>5</sup> The political decision in favour of the 1:1 exchange rate had been made in the belief that this would rapidly increase the East German standard of living, which would prevent large-scale migration from east to west). West German politicians had made corresponding promises in the pre-election campaign in early 1990.<sup>6</sup>

Furthermore, wages were not fully adjusted to divergent productivities. The strongly overvalued entry of the East German mark into the German monetary union in combination with the lower productivity of East German industry would have required a substantially lower wage level in the eastern part of Germany. Because of the strong bar-

3 Ibid.

4 Larger bank deposits, etc. were converted at 1:2.

5 K. Koedijk, C. Kool: Tail Estimates of East European Exchange Rates, in: *Journal of Business & Economic Statistics*, Vol. 10, 1992, No. 1, pp. 83-96. The estimation is based on a black market rate, as the East German mark was not freely convertible.

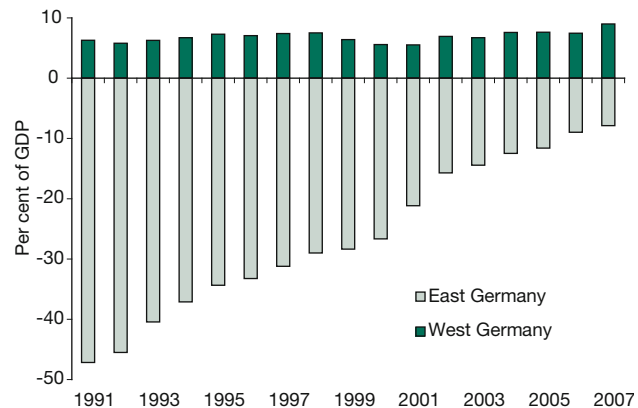
6 H. Tietmeyer: Die 1:1-Umstellung der Ost-Mark war problematisch, *Speech at: Die deutsch-deutsche Währungsunion – Zehn Jahre danach*, 2000.

gaining power of the unified German trade unions, wages in East Germany increased far above the level justified by industrial productivity.<sup>7</sup> Furthermore, rigid West German labour market regulations were transferred to East Germany as trade unions pushed for a quick equalisation of working conditions.

The German monetary union in combination with wage equalisation required alternative adjustment mechanisms. As in Mundell's<sup>8</sup> seminal theory, labour migration from east to west, as well as public transfers (explicit and implicit via social security systems) in the opposite direction (to prevent even more migration), became the most important adjustment channels. By 2008 East Germany had lost around 6 per cent of its net population, particularly due to migration to the western part of Germany. Additionally, within a completely integrated labour market and given a highly developed transport infrastructure, thousands of workers started to commute from east to west.

Public transfers to East Germany consist of payments for extraordinary burdens related to German unification (*Solidarpakt I+II*) and payments via the German regional tax equalisation system (*Länderfinanzausgleich*).<sup>9</sup> In total since 1990, transfers from west to east are estimated at about €15 to 17 billion annually. Transfers corresponded to more than 20% of the current aggregated public budgets of the East German federal states in 2008.<sup>10</sup> In addition to the outright transfers, implicit transfers arose from the adoption of the West German social security system in East Germany. In Figure 6, overall net transfers (private and public) are approximated by the East German current account balance. Based on this proxy, net transfers constituted almost 50% of East German GDP in 1990. Although net transfers gradually declined to less than 10% of East German output, the persistence of public transfer flows remains a source of grievance in the western part of Germany, which generates the largest share of German tax revenues. All in all, the overall volume of net transfers

**Figure 6**  
Current Account Balance of West and East Germany as Per Cent of GDP



Source: Destatis, own calculations based on regional national account figures.

from West to East Germany between 1991 and 2009 is estimated to be €1300 billion.

The intra-German adjustment to the unification shock based on high wage levels and public debt can be seen as the starting point for the divergence of intra-European current account balances. The 1:1 German monetary union combined with the real effective appreciation of the German mark (Figure 4) and the low productivity of the industries in the eastern part of the country had eroded the international competitiveness of unified Germany. During the post-unification recession, unemployment rocketed, in particular in the eastern part where most state-owned enterprises went bankrupt following the sudden real wage hikes, which were not backed by corresponding productivity increases. The East German unemployment rate jumped from virtually zero in 1990 to 10% in 1991 and reached almost 20% in 1997. The unemployment rate of unified Germany climbed to unknown peaks, from about 7% in 1990 to more than 12% in 1998.

German public debt had increased sharply during the unification process (Figure 5), from 41% of GDP in 1990 to 60% in 1998. During the second half of the 1990s, the advent of the European Monetary Union and the Stability and Growth Pact enhanced the need for fiscal consolidation. The hike in both unemployment and public debt drastically reduced the bargaining power of trade unions. The consolidation of public budgets seemed even more necessary in the face of the Stability and Growth Pact, which Germany itself had initiated and now seemed to be unable to comply with. To reduce public spending, public wage growth was kept very moderate. Private sector wages were not only constrained by public wage austerity but also by high

7 In 1992, East German wages reached 62 per cent of the West German wage level (K. Brenke: Löhne in Ostdeutschland – Anpassung an das westdeutsche Niveau erst auf lange Sicht möglich, in: DIW Wochenbericht, No. 24, 2001) and have since converged to about 80 per cent (J. Ragnitz: Strukturelle Ursachen des Einkommensrückstands Ostdeutschlands, in: Ifo Dresden berichtet, No. 2, 2010, pp. 17-23).

8 R. Mundell, op. cit.

9 Bundesfinanzministerium: Bund/Länder – Finanzbeziehungen auf der Grundlage der Finanzverfassung, Ausgabe 2009, Berlin 2010.

10 Data are collected from online statistics of the Bundesfinanzministerium, op. cit. and Deutscher Bundestag: Entwurf eines Gesetzes über verfassungskonkretisierende allgemeine Maßstäbe für die Verteilung des Umsatzsteuereinkommens, für den Finanzausgleich unter den Ländern sowie für die Gewährung von Bundesergänzungszuweisungen, Drucksache, No. 14/6577, 2010.

unemployment figures and the integration of Central and Eastern European countries into the European Union. As a result, overall German real wage growth remained very moderate. The resulting gloomy business sentiment put a drag on domestic investment, which – in the context of global financial exuberance – made investment in foreign government bonds look very attractive.<sup>11</sup>

Due to rising productivity, unit labour costs have not significantly increased since 1995 and have strongly declined versus other EU members, as suggested by Figure 4. A lasting real depreciation trend of the German mark set in, which was mainly perpetuated by a gradual relative decline in unit labour costs. This trend continued after the German mark had been converted into the euro and the German current account rallied to unprecedented surpluses (Figure 7), while Germany's neighbours generated rising deficits. Thus, the distortions caused by the adjustment to German unification based on public debt and high wages constituted the origin of the divergence of intra-European current accounts since the late 1990s, as Germany sought to regain its competitiveness.

### Long-term Consequences for the Euro Area

The introduction of the euro further promoted the divergence of current account balances in the European Monetary Union, as shown in Figure 1 and Figure 7. Although a common monetary policy was implemented and euro area money and capital markets became (more) integrated, differences in wage growth remained in place. In Germany, overall wage growth remained moderate as a legacy of the post-unification distortions, as it was perceived as urgent that these should be addressed. In contrast, wage growth in many other euro area countries remained high as a result of the inflation indexation of wages and high public sector wage growth.<sup>12</sup>

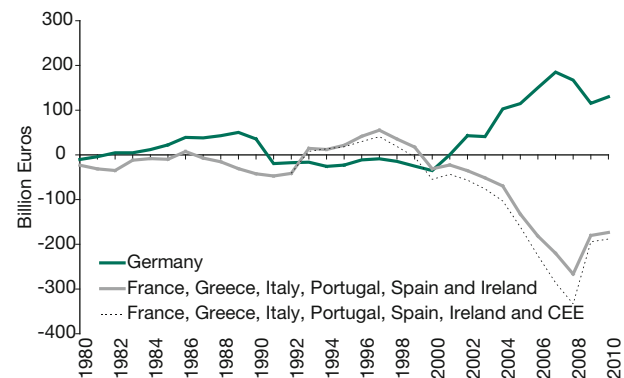
High wage growth at the E(M)U periphery became possible because of private and public austerity in Germany, which slowed German domestic investment and led to immense German current account surpluses and net capital exports (Figures 1 and 2). While Germany's net international investment position had declined to close to zero in 1998, after the start of EMU, Germany's net international assets dramatically increased to more than €900 billion by 2009 (Figure 2). Gros<sup>13</sup>, who refers to the current crisis as “the long

11 H.-W. Sinn: The Financial Crisis: The Way Forward, in: CESifo Forum, Vol. 11, 2010, No. 3, pp. 12-19.

12 H. Zemanek: Competitiveness Within the Euro Area: The Problem that still Needs to be Solved, in: Economic Affairs, Vol. 30, 2010, No. 4, pp. 42-47.

13 D. Gros: The Long Shadow of the Fall of the Wall, VOX Column 2010, <http://www.voxeu.org/index.php?q=node/5191>.

Figure 7  
European Current Account Balances



Source: IMF; CEE countries are Czech Republic, Slovak Republic, Slovenia, Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland and Romania.

shadow of the fall of the wall”, argues that the worldwide credit boom starting in 2001 made the euro crisis possible: the rise of intra-European current account imbalances was promoted by the low interest rate policy in the USA after the burst of the new economy bubble, which was translated into a (rather) low interest rate policy in the euro area.<sup>14</sup> Thus the turning point is marked by the burst of the dotcom bubble, which caused rising German savings to stay in Germany. After 2001 the fast rising German capital exports were underpinned by ECB interest rate cuts.

German net savings were funnelled via integrated capital markets *inter alia* to southern, central and eastern Europe. The elimination of the exchange-rate risk, and the common monetary policy as conducted by the ECB, improved macroeconomic conditions and therefore credit conditions in former high inflation countries such as Greece, Portugal, Spain, Bulgaria and Hungary. Lower borrowing constraints as a result of financial deepening accelerated southward, eastward and westward capital flows. The EMU and EU membership seemed to have nourished the notion of enhanced international capital allocation efficiency and international risk sharing.

The common monetary policy of the European Central Bank was unable to steer against rising wages and inflation at the E(M)U periphery as German low wage and price growth kept average euro area inflation close to its target. Given that capital flows were unidirectional rather than mutual (and therefore wage policies in the EMU diverged), the one-size-fits-all monetary policy of the EMU led to a divergence of real interest rates, which further fuelled asym-

14 G. Schnabl, S. Freitag: Reverse Causality in Global Current Accounts, in: European Central Bank Working Paper, No. 1208, 2010.

metric economic development. The nominal differences in wage and price inflation translated into real divergences. The German mark gradually depreciated against all other euro area and EU currencies, as shown in Figures 3 and 4, and current accounts continued to diverge<sup>15</sup>, as shown in Figure 7.

Mundell<sup>16</sup> later argued that a higher degree of capital market integration in a monetary union helps to absorb asymmetric shocks via cross-country financial asset holdings such as bonds, equities and bank credits.<sup>17</sup> Applied to the European Monetary Union, Mundell's argument<sup>18</sup> implies that Germany would have increased its assets in Greece, and Greece would have increased its assets in Germany, after both countries had entered the monetary union. With each country holding claims on the output of the other, asymmetric shocks or adverse business cycles are shared by varying capital income and capital valuation. This international risk-sharing mechanism should have helped to absorb asymmetric shocks and to smooth consumption over time.

However, in contrast to Mundell's expectations<sup>19</sup>, the capital market integration process in the European Monetary Union was de facto not a mutual one. Capital flows were unidirectional, with German capital in particular flowing to southern and western Europe, as well as to Central and Eastern European countries (via Austria). In contrast, very little capital seems to have moved in the opposite direction. In effect, integrated capital markets, fuelled by the global credit boom, allowed the current account balances to diverge as shown in Figure 7. Because of the resulting asymmetric distribution of risk, instead of risk sharing, capital markets further aggravated the situation once the mood had changed and crisis struck.<sup>20</sup>

Apparently, during the crisis, market participants and lenders seem to have interpreted all EMU countries as being jointly liable for a single member country's debt. Markets seem to have ignored the European Treaty, which explicitly

forbids bailouts for the euro area (Article 125 EU Treaty). The Greek government, Greek banks and German banks seem to have anticipated supranational support (i.e. a bailout), because globally past balance of payment crises had usually been monetarised by rising public debt in combination with interest rates cuts.<sup>21</sup> Thus, moral hazard is likely to have inflated the dimension of the current crisis. This might be particularly true considering that the shock did not appear suddenly and exogenously as modelled by Mundell<sup>22</sup>; rather, the crisis potential was gradually built up by diverging current accounts and rising intra-euro area liabilities.<sup>23</sup>

Although it remains unclear who will pay for the costs of the European debt crisis, West German savers and taxpayers bear an overproportionate risk if the fast rising European public debt burden is to be worked off by raising taxes or inflation. West German taxpayers wonder if Greece will follow the East German example, with adjustment costs being borne on a supra-national level by taxpayers, leading to net transfers that could become even more interminable than in the case of East Germany. The stake at risk is a substantial part of Germany's net international assets as shown in Figure 2, i.e. nearly €900 billion, which comes close to the total cost of German unification. The process of devaluing German international savings would be accelerated in the case of defaults by Greece, Ireland, Portugal, Spain or others. If the European Central Bank responds to the threat of default of EMU and/or EU members with monetary expansion, the devaluation of savings will take place via higher inflation or new boom-and-bust cycles. In all cases, inter-temporal allocation would be turned into intra-European redistribution.

### Economic Policy Implications: Towards an Even Greater Monetary Expansion?

The adjustment mechanisms of asymmetric shocks in the European Monetary Union are complex and go beyond Mundell's models.<sup>24</sup> Because financial markets tend to regard country-specific liabilities as union-wide liabilities, it is more likely that asymmetric shocks in the E(M)U will be absorbed by rising public debt or inflation. German unification and the European debt crisis have increased and will continue to increase public debt throughout Europe. When

15 H. Zemanek, A. Belke, G. Schnabl: Current Account Balances and Structural Adjustment in the Euro Area, in: *International Economics and Economic Policy*, Vol. 7, 2010, No. 1, pp. 83-127.

16 R. Mundell: A Plan for a European Currency, in: H. Johnson, A. Swoboda (eds.): *The Economics of Common Currencies*, Allen and Unwin, London 1973; R. Mundell: Uncommon Arguments for Common Currencies, in: H. Johnson, A. Swoboda (eds.): *The Economics of Common Currencies*, Allen and Unwin, London 1973.

17 R. McKinnon: Optimum Currency Areas and Key Currencies: Mundell I Versus Mundell II, in: *Journal of Common Market Studies*, Vol. 42, 2004, No. 4, pp. 689-715.

18 R. Mundell: A Plan for a European Currency, op. cit.; R. Mundell: Uncommon Arguments for Common Currencies, op. cit.

19 Ibid.

20 H. Zemanek: Asymmetric International Risk Sharing in the Euro Area, mimeo 2010.

21 A. Hoffmann, G. Schnabl: A Vicious Cycle of Manias, Crashes and Asymmetric Policy Responses, CESifo Working Paper, No. 2855, 2009 argue that asymmetric interest rate cuts – i.e. larger interest rate cuts during the crisis than interest rate increases during the recovery – have hidden the cost of crisis resolution and have contributed to a fall of the global interest rate level towards zero.

22 R. Mundell: A Theory of Optimum Currency Areas, op. cit.

23 H. Zemanek: Asymmetric International Risk Sharing..., op. cit.; H. Zemanek et al.: Current Account Balances..., op. cit.

24 R. Mundell: A Theory of Optimum Currency Areas, op. cit.; R. Mundell: A Plan for a European Currency, op. cit.; R. Mundell: Uncommon Arguments for Common Currencies, op. cit.

this debt threatens to reach unsustainable limits, at the latest during a new crisis round, debt reduction via increased inflation becomes more likely.

Inter-temporal saving will not pay off if increased public debt and/or inflation are used to prevent credit defaults during a crisis. From this point of view, the proposal by French Finance Minister Lagarde to increase wages and private consumption in Germany is in the very interest of German savers and taxpayers. The declining German current account surplus would reduce potential future credit risk for Germany in general and German savers and taxpayers in particular. However, three factors make it unclear how a declining current account surplus can be achieved through economic policy action. First, German wages are negotiated by enterprises and trade unions without political interference. Even if France demands higher German wages, the German government has only limited scope to encourage private sector wage increases. Generous public wage increases are likely to encourage higher private sector wages, but they are constrained by the Stability and Growth Pact, which seems to have become even more binding after the most recent crisis.

Second, the German current account surplus may shrink if German savers anticipate further German international savings defaults. If this were the case, savings would be invested at home, for instance in the real estate sector, where prices are cheap from a European perspective and therefore

have already begun to pick up. However, the German real estate sector may not be large enough to absorb all German savings. Third, even if wages in Germany rise, it is not certain whether Germans will translate higher wages into more domestic demand. If Germans stick to their saving habit while wages rise, the current account surplus will grow further. A huge public investment programme, like the one after unification, would be necessary to redirect German capital towards domestic investment. As the marginal efficiency of public investments is generally below that of private investments and decreases over time, a large-scale Keynesian investment programme may not be a desirable option.

Unintended repercussions throughout all of Europe are likely if the German current account turns negative. As during the unification boom, rising real interest rates, slowing growth and increasing unemployment throughout Europe may be the consequence. This is not the scenario Madame Lagarde has in mind. Therefore, she may want to consider the full implications of her idea, unless, of course, she has already anticipated that the reversal of German capital flows will trigger a new crisis in fragile countries such as Ireland, Greece and Spain, as well as in Central and Eastern Europe. Then, the threat of a new crisis would be the catalyst for even further monetary expansion by the ECB. This could be equivalent to a move from a German-style “hard-nosed” central bank to a more inflation-friendly central bank of the type that prevailed in France and many current EMU members before 1999.