



Why a Breakup of the Euro Area Must Be Avoided: Lessons from Previous Breakups

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One of the big questions of our time is whether the Economic and Monetary Union (EMU) will survive. Too often, analysts discuss a possible departure of one or several countries from the euro area as little more than a devaluation, but I argue that any country's exit from the euro area would be a far greater event with potentially odious consequences. Exit from the EMU cannot be selective: It is either none or all.

The breakup of a currency zone is far more serious than a devaluation. When a monetary union with huge uncleared balances is broken up, the international payments mechanism within the union breaks up, impeding all economic interaction. A new payments mechanism may take years to establish, as was the case in the former Soviet Union. Meanwhile, the collapse may lead to a host of disasters. Almost half the cases of hyperinflation in the world took place in connection with the disorderly collapse of three European currency zones in the last century: the Austro-Hungarian Empire, Yugoslavia, and the Soviet Union. It is easier to establish a monetary union than to break it up. In this policy brief, I focus on lessons that can be learned from the breakup of the ruble zone, in which I participated actively.¹

I have three objectives. First, I clarify what a devastating event a possible collapse of the EMU with its large uncleared imbalances could be. Default need not necessarily lead to departure from the euro area. Greece has already defaulted on its official debt to reduce its total public debt to a more sustainable level, but it has not left the euro area. I argue that a Greek exit would not be merely a devaluation for Greece but would unleash a domino effect of international bank runs and disrupt the EMU payments mechanism, which would lead to a serious, presumably mortal, disintegration of the EMU. It

1. I served as a senior economic advisor to the Russian government from November 1991 until January 1994. One of my primary preoccupations, together with late acting Prime Minister Yegor Gaidar and late Finance Minister Boris Fedorov, was to break up the currency zone to the benefit of Russia. The reason was that the political preconditions for a monetary union had disappeared.

would inflict immense harm not only on Greece but also on other countries in the European Union and the world at large.

Second, the critical argument for a domino effect is that the EMU already has large uncleared interbank balances in its so-called Target2 system. Target2 stands for Trans-European Automated Real-Time Gross Settlement Express Transfer System. It is simply the second version of this payments system now in use (Bindseil, Cour-Thimann, and König 2012, 85). Exit of any country is likely to break this centralized EMU

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payments mechanism. These rising uncleared balances are a serious concern because nobody can know how they will be treated if the EMU broke up. Any attempt to cap them would risk disruption of the EMU. These balances need to be resolved but in a fashion that safeguards the integrity of the EMU. However, as I show, this can hardly be done by anything less than fully securing the sustainability of the EMU.

Third, if the impermissible happens and the euro area breaks up, the damage will vary greatly depending on the policies pursued. On the basis of prior dissolutions of currency zones, I suggest that an amicable, fast, and coordinated end of the EMU would minimize the harm.

The first section reviews the arguments for a breakup of the euro area. The second section scrutinizes prior dissolutions of currency zones. Section three gathers estimates on the possible costs of the breakup of the EMU, and section four examines the problems with Target2. Section five outlines how a likely domino effect of the exit of one country could lead to the collapse of the EMU as a whole. Section six considers how the euro area would best be dissolved, if the undesirable would become necessary.

The discussion about the euro crisis is broad and extensive. But in this policy brief, I focus only on the issues specified above. I leave aside the many current questions about crisis management, financing, and governance of the EMU.

REVIEWING ARGUMENTS FOR A BREAKUP

From the outset, many prominent Anglo-American economists, notably Milton Friedman and Martin Feldstein, have been of the view that the euro area could never work. The original arguments, well presented by Nouriel Roubini (2011), are straightforward. First, the euro area did not comply with the original conditions formulated by Robert Mundell for an optimum currency area. The essence of Mundell's (1961, 661) argument was "that the optimum currency area is the region—defined in terms of internal factor mobility and external factor immobility." Several EMU members have severely regulated labor markets. Second, "[a]ll successful monetary unions have eventually been associated with a political and fiscal union" (Roubini 2011).

These arguments are valid, but supporters of the EMU have countered that the optimum currency area conditions as well as the political and fiscal union—that is, a federalization of the European Union—could evolve over time and should come to fruition in this crisis. Hopefully the fundamental problems of euro area governance are now being resolved with the formation of a stricter fiscal union, a banking union, and a sufficiently large bailout fund (Bergsten and Kirkegaard 2012). The EMU has not been credible with regard to fiscal discipline and hard budget constraints, and the market has rightly presumed that all national sinners would be bailed out. The current crisis has enhanced the fiscal credibility of the EMU but has instilled new fears of sovereign defaults and currency risks.

Two major problems in the euro crisis have aroused new calls for the breakup of the euro area (see, for example, Lachman 2010, Roubini 2011). One is sovereign default. Many presumed that an EMU country that defaulted would have to leave the euro area, but that is not true. Greece has defaulted on its sovereign debt, but it remains in the euro area. As Martin Wolf (2011a) observes, "debt restructurings are quite likely, any sort of break-up much less so." With Greece having set an example, it would be natural to expect further write-offs of debt. Carmen Reinhart and Kenneth Rogoff (2009) have empirically established that a developed economy with more than 90 percent of GDP in public debt can barely manage it; that ceiling is at 60 percent of GDP for emerging-market economies. Given that Greece, Italy, Ireland, and Portugal all have more than 100 percent of GDP in public debt, more official reductions of public debt seem likely, but as in the Greek case such defaults are no reason to exit the EMU.

The other problem is that the South European countries are not sufficiently competitive to balance their current

account with the northern members of the EMU. Roubini (2011) states, “there is really only one other way to restore competitiveness and growth on the periphery: leave the euro, go back to national currencies and achieve a massive nominal and real depreciation. After all, in every emerging-market financial crisis that restored growth a move to flexible exchange rates was necessary—and unavoidable—on top of official liquidity, austerity and reform, and in some cases, debt restructuring and reduction.”

These rising uncleared balances are a serious concern because nobody can know how they will be treated if the EMU broke up. Any attempt to cap them would risk disruption of the EMU.

First of all, this statement is not true. While beneficial in some cases, devaluation is by no means necessary for crisis resolution. About half the countries in the world have pegged or fixed exchange rates. During the East Asian crisis in 1998, Hong Kong held its own with a fixed exchange rate, thanks to a highly flexible labor market. The cure for the South European dilemma is available in the European Union. In the last three decades, several EU members have addressed severe financial crises by undertaking serious fiscal austerity and reforms of labor markets, thus enhancing their competitiveness, notably Denmark in 1982, Holland in the late 1980s, Sweden and Finland in the early 1990s, all the ten postcommunist members in the early 1990s, and Germany in the early 2000s. Remember that as late as 1999, the *Economist* referred to Germany as “The sick man of the euro.”² More recently, the three Baltic countries, Estonia, Latvia, and Lithuania, as well as Bulgaria have all repeated this feat (Åslund 2010, Åslund and Dombrovskis 2011). Among these many crisis countries, only Sweden and Finland devalued, showing that devaluation was not a necessary part of the solution. The peripheral European countries suffer in various proportions from poor fiscal discipline, overly regulated markets, especially labor markets, a busted bank and real estate bubble, and poor education, which have led to declining competitiveness and low growth. All these ailments can be cured by means other than devaluation.

Second, any choice of economic policy must be based on a realistic comparison between the alternatives. The EMU

was designed to be irreversible (Issing 2008), which means that it comes with a number of very costly poison pills. By Maastricht standards, it was a mistake to let Greece into the EMU, but that is not relevant today, because the decision to accept Greece is not reversible. I argue below that the cost of euro area breakup would be horrendous, while the resolution of the South European competitiveness problem is technically comparatively prosaic and devaluation is not a necessary tool to accomplish that goal.

Basically, the arguments for a breakup of the EMU boil down to two points: that its governance cannot be fixed or that Southern Europe cannot undertake labor market reforms or carry out wage cuts. For Greece, the only real advantage from an exit would be the possibility to devalue its new currency to become competitive.

Yet, without a Latvian-style internal devaluation, Greece would also forgo many desirable structural reforms. After two years of rigorous reforms economic growth has returned to Latvia (Åslund and Dombrovskis 2011). An independent monetary policy would hardly be an advantage for Greece if it were to end up in a devaluation-inflation cycle, which is what one would expect. The negative effects, by contrast, would be massive, both for Greece and other countries because an exit of any country is likely to lead to a full breakup of the EMU, a profoundly different kind of event. As Wolfgang Münchau (2012) writes: “A collapse [of the EMU] would constitute the biggest economic shock of our age.” In this policy brief I clarify why that will be the case.

In one case, though, the EMU might be beyond salvation and thus not worth saving. It would be in the implausible case of inflationary forces taking over the European Central Bank (ECB), as happened with the Central Bank of Russia in 1992. Such a development would show that an independent central bank can be perfectly irresponsible and unaccountable and would amount to the ultimate failure of EMU governance. However, I disregard this scenario as too unlikely.

PRIOR DISSOLUTIONS OF CURRENCY ZONES

The world and Europe have seen the demise of many multinational currency zones. Some have been dramatic, while others have been orderly. In the last century, Europe has experienced at least six breakups of such monetary unions, but they have all been completely different in nature.

It was rather easy to dissolve a currency zone under the gold standard when countries maintained separate central banks and payments systems. Two prominent examples are the Latin Monetary Union and the Scandinavian Monetary Union. The Latin Monetary Union was formed first with

2. “The Sick Man of the Euro,” *Economist*, June 3, 1999.

France, Belgium, Italy, and Switzerland and later included Spain, Greece, Romania, Bulgaria, Serbia, and Venezuela. It lasted from 1865 to 1927. It failed because of misaligned exchange rates, the abandonment of the gold standard, and the debasement by some central banks of the currency. The similar Scandinavian Monetary Union among Sweden, Denmark, and Norway existed from 1873 until 1914. It was easily dissolved when Sweden abandoned the gold standard. These two currency zones were hardly real, because they did not involve a common central bank or a centralized payments system. They amounted to little but pegs to the gold standard. Therefore, they are not very relevant to the EMU.

Europe offers one recent example of a successful breakup of a currency zone. The split of Czechoslovakia into two countries was peacefully agreed upon in 1992 to occur on January 1, 1993. The original intention was to divide the currency on June 1, 1993. However, an immediate run on the currency led to a separation of the Czech and Slovak korunas in mid-February, and the Slovak koruna was devalued moderately in relation to the Czech koruna. Thanks to this early division of the currencies, monetary stability was maintained in both countries, although inflation rose somewhat and minor trade disruption occurred (Nutti 1996; Åslund 2002, 203). This currency union was real, but thanks to the limited financial depth just after the end of communism, dissolution was far easier than will be the case in the future. In particular, no financial instruments were available with which investors could speculate against the Slovak koruna.

The situation of the EMU is very different from these three cases. It has no external norm, such as the gold standard, and it is a real currency union with a common payments mechanism and central bank. The payments mechanism is centralized to the ECB and would fall asunder if the EMU broke up because of the large uncleared balances that have been accumulated. The more countries that are involved in a monetary union, the messier a disruption is likely to be. The EMU, with its 17 members, is a very complex currency union. When things fall apart, clearly defined policymaking institutions are vital, but the absence of any legislation about an EMU breakup lies at the heart of the problem in the euro area. It is bound to make the mess all the greater. Finally, the proven incompetence and slowness of the European policymakers in crisis resolution will complicate matters further.

The three other European examples of breakups in the last century are of the Habsburg Empire, the Soviet Union, and Yugoslavia. They are ominous indeed. All three ended in major disasters, each with hyperinflation in several countries. In the Habsburg Empire, Austria and Hungary faced hyperinflation.

Yugoslavia experienced hyperinflation twice. In the former Soviet Union, 10 out of 15 republics had hyperinflation.³

The combined output falls were horrendous, though poorly documented because of the chaos. Officially, the average output fall in the former Soviet Union was 52 percent, and in the Baltics it amounted to 42 percent (Åslund 2007, 60). According to the World Bank, in 2010, 5 out of 12 post-Soviet countries—Ukraine, Moldova, Georgia, Kyrgyzstan, and Tajikistan—had still not reached their 1990 GDP per capita levels in purchasing power parities. Similarly, out of seven Yugoslav successor states, at least Serbia and Montenegro, and probably Kosovo and Bosnia-Herzegovina, had not exceeded their 1990 GDP per capita levels in purchasing power parities two decades later (World Bank 2011). Arguably, Austria and Hungary did not recover from their hyperinflations in the early 1920s until the mid-1950s. Thus the historical record is that half the countries in a currency zone that breaks up experience hyperinflation and do not reach their prior GDP per capita as measured in purchasing power parities until about a quarter of a century later, which is far more than the lost decade in Latin America in the 1980s.

The causes of these large output falls were multiple: systemic change, competitive monetary emission leading to hyperinflation, collapse of the payments system, defaults, exclusion from international finance, trade disruption, and wars. Such a combination of disasters is characteristic of the collapse of monetary unions.

A common reflex to these cases is to say that it was a long time ago, that things are very different now, and that other factors matter. First of all, it was not all that long ago. Two of these economic disasters occurred only two decades ago. Second, hyperinflation was probably the most harmful economic factor, and it is part and parcel of the collapse of a currency zone, regardless of the time period. About half of the hyperinflations in world history occurred in connection with the breakup of these three currency zones. The cause was competitive credit emission by competing central banks before the breakup. Third, monetary indiscipline and war are closely connected. The best illustration is Slovenia versus Yugoslavia. In the first half of 1991, the National Bank of Yugoslavia started excessive monetary emission to the benefit of Serbia. On June 25, 1991, Slovenia declared full sovereignty not least to defend its finances. Two days later, the Yugoslav armed forces attacked Slovenia (Pleskovic and Sachs 1994,

3. The literature on the collapses of these three currency unions is ample, notably, Pasvolksy (1928), Sargent (1986), Dornbusch (1992), Pleskovic and Sachs (1994), Åslund (1995), and Granville (1995).

198). Fortunately, that war did not last long and Slovenia could exit Yugoslavia and proved successful both politically and economically.

Many economists disregard the experiences of the former Soviet Union and Yugoslavia because both countries also went through systemic changes. In order to control for systemic change I compare the former Soviet Union with Romania and Bulgaria, which also had highly distorted socialist economies and a similar level of economic development as the Soviet Union. Romania's GDP fell officially by "only" 25 percent,

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that is, 27 percent less than in the former Soviet Union. Bulgaria saw its GDP fall by 33 percent or by 19 percent less than the former Soviet Union (Åslund 2002, 118). Thus, the total output cost because of the slow collapse of the ruble zone might have been on the order of 20 to 25 percent.⁴

These dissolutions were prolonged, and the longer they lasted, the worse the economic disaster became. The cause of the breakups was political disagreements, with the old center of the union and most successor states trying to maintain the currency union even after it had proven impossible to do so. The ultimate disaster came when competing central banks issued the same currency, prompting hyperinflation.

Mark Cliffe et al. (2010, 6) note "that we are moving from 'thinking the unthinkable' to 'quantify the unquantifiable.' True, there is a case history of failed monetary unions to work from. But EMU is a monetary union like no other in terms of its scale and ambition." I disagree. Of the three dramas discussed above, I would argue that the dissolution of the ruble zone in 1992 and 1993 is of the greatest relevance to the EMU. Many features of the ruble zone may be replicated in a euro area breakup. The most important feature was a centralized payments system, which was first paralyzed with large imbalances accumulated and then disrupted, impeding payments and trade for long periods. The dominant issue in Yugoslavia was Serbia's attempt to rule the other republics,

4. I prefer to use Romania and Bulgaria as comparisons, because they were at a similar level of economic development and severely distorted economies. The Central European countries (Poland, Czechoslovakia, and Hungary) started off with much more favorable conditions and therefore experienced much smaller declines. East Germany was flooded with an annual subsidy from West Germany of nearly \$80 billion a year.

and Serbia caused the hyperinflation through excessive money issue. The Austro-Hungarian drama was at a time when financial and international institutions were quite different.

I shall abstain from discussing military action in any detail, but it would be foolish not to note that possibility. The whole of Yugoslavia and six post-Soviet countries faced wars. The hyperinflations in the wake of the breakup of the Austro-Hungarian Empire are routinely mentioned as contributing causes of World War II. The European Union prides itself in peace being its greatest achievement, and if its sustenance would be threatened, peace would not be taken for granted. The Greek-Turkish war over Cyprus occurred as late as 1974, and the conflict over the division of Cyprus remains unresolved, with Nicosia advertising itself as the last divided capital in the world.

Admittedly much has changed in the last two decades, but that is hardly an advantage. The world of global finance has become more complex. International financial flows are so much larger and faster than in the past, which magnifies and speeds up all the negative effects. When the successful dissolution of the Czech and Slovak common currency zone took place, there was nothing to speculate in, but today ample opportunities exist. Therefore replicating that success would no longer be possible. Whereas the postcommunist policymakers were not very enlightened economists, they acted fast in comparison with the slow EU decision making. Nor were they encumbered by complex constitutions guarded by capricious constitutional courts. If anything, the situation is likely to be worse today.

POSSIBLE COSTS OF EMU BREAKUP

The views on the cost of the dissolution of the euro area vary greatly. Many opponents of the euro area just ignore them (see, for example, Feldstein 2010, Lachman 2010, Roubini 2011). A typical dismissive statement is: "Splitting up may be hard to do, but it can be better than sticking to a bad marriage" (Das and Roubini 2012).

Opponents of a breakup, on the contrary, are all the more concerned. Willem Buiter (2011) concluded, "A euro area break-up, even a partial one involving the exit of one or more fiscally and competitively weak countries, would be chaotic. A full or comprehensive break-up...would create pandemonium. It would not be a planned, orderly, gradual unwinding of existing political, economic and legal commitments.... If Spain and Italy were to exit, there would be a collapse of systematically important financial institutions throughout the EU and North American and years of global depression" (for similar views, see Eichengreen 2007, Blejer and Levy-Yeyati

2010, Cliffe et al. 2010, Dabrowski 2012, Normand and Sandilya 2011).

Buiter sees an escalation of financial panic with bank runs, big devaluations, proliferation of exits from the EMU, liquidity freeze, defaults, and legal conflicts, very much in line with my argument below. Presuming a complete breakup of the euro area, he predicts that “[d]isorderly sovereign defaults and eurozone exit by all five periphery states... would trigger a global depression that would last for years, with GDP likely to fall by more than 10 per cent” (Buiter 2011). John Normand and Arindam Sandilya (2011) take a very similar view and detail the steps but not the costs.

Interestingly, Mario Blejer and Eduardo Levy-Yeyati (2010), prominent economists who played major roles in Argentine economic policymaking during the 2002 crisis as president and chief economist, respectively, of the Central Bank of Argentina, are firmly opposed to any exit from the EMU. They offer many of Buiter’s arguments, although numerous outsiders have referred to Argentina as an argument for a Greek exit from the EMU. The Argentine crisis resolution in 2001–02 is now presented as a success, but Blejer and Levy-Yeyati disagree. They underscore that the pesofication of bank deposits and credits caused major currency mismatches and in effect led to large confiscations, which had a massive redistributive impact and prompted violent social and political reactions. Michael Mussa (2002, 51) observed that the default and devaluation demolished Argentina’s excellent banking system. The government aggravated their hammering, by mandating that dollar loans of Argentine banks be paid in pesos, while converting dollar deposits into pesos at an unfavorable exchange rate. After a decade of recovery growth, the legacy of the Argentine crisis resolution has been populism and poor economic policy, hardly an example to follow.

Cliffe et al. (2010, 9) have provided the most detailed assessment of the process and costs of a dissolution of the EMU. They assess the overall decline in output in the EMU countries of a complete breakup of the EMU at 5 to 9 percent during the first year and at 9 to 14 percent over three years. Naturally, any such discussion has to be highly hypothetical and thus speculative, but it is worth going through their reasoning.

In their scenario of a complete breakup of the euro area, Cliffe et al. (2010, 7-8) presume that “governments decide to convert all assets and liabilities into their new national currencies. Capital controls are temporarily introduced.... New notes and coins are reintroduced as quickly as possible.” They identify five blows to the real economy. First, “the logistical and legal problems of reintroducing national currencies, while transitional, would be serve and protracted.” Second, “capital

flight and distress in the financial system would disrupt trade and investment.” Third, a “plunge in business and consumer confidence would likely be accompanied by a renewed dive in asset prices inside and outside the Eurozone.” Fourth, the “challenge of maintaining fiscal credibility and securing government funding would be intensified. This would call for yet more fiscal tightening measures, particularly for the weaker peripheral Eurozone countries.” Fifth, non-euro area countries would suffer from sharp appreciation of their currencies, “compounding the damage to their export growth.”

As a consequence, they anticipate “a deep recession across the Eurozone..., dragging down the global economy.” In the euro area output falls from 4 percent in Germany to 9 percent in Greece in the first year. “Elsewhere the impact is particularly large in neighbouring European economies,” from a fall of 3 percent in the United Kingdom and 5 percent in Central and Eastern Europe (p. 9). However, they do not bring up what I consider the main concern, a collapse of the payments system discussed below.

A back-of-the-envelope calculation comparing the former Soviet Union and Romania and Bulgaria puts the total output collapse at 20 to 25 percent, but nobody can know because any political and economic chain reaction would be unpredictable.⁵

A FUNCTIONING PAYMENTS SYSTEM IS VITAL FOR THE SURVIVAL OF THE EMU

In important respects, the EMU is reminiscent of the three difficult cases, the Austro-Hungarian Empire, Yugoslavia, and especially the ruble zone. It lacks rules and procedures for exit, and it has a centralized payments system, which is an essential part of a real currency union, but it is also a true poison pill. There is no reason to believe that an exit would be easily accepted by all the parties concerned. The EMU may have an advantage in comparison with the other monetary unions as long as the European Central Bank (ECB) manages to retain a firm monopoly on the issue of money. Yet if political strife would break up the ECB, that advantage would be lost. In one way or the other the existing national central banks may start issuing money, as was the case in Yugoslavia, and at the end of the Soviet Union each republic set up its own central bank. In extraordinary situations not regulated by law, the importance of formal barriers and custom should not be overestimated.

5. Private investment banks have produced the most interesting, detailed, and also pessimistic assessments of the effects of a breakup of the euro area. I have read excellent reports by JP Morgan and ING, but there are presumably other good reports that I have not been able to find in the public realm. In particular, I am aware of Willem Buiter’s paper at Citi.

Normand and Sandilya (2011) have suggested how an EMU breakup would take place: “In a modern financial market dominated by electronic payments and in a zone free of capital controls...the switch to an alternative currency would need to be secretive and practically immediate to be effective. Mere suspicion of a regime switch would be sufficient to drive massive deposit flight.... Most likely a country would decree overnight that the country’s legal tender had changed from euros to the new currency at a declared conversion rate, and that all accounts and contracts would be redenominated immediately.... All financial markets would be shut and banks closed for some period—perhaps several days—to allow the conversion.”

The critical concern is the EMU payments system in combination with large uncleared balances. In 2011, Professor Hans-Werner Sinn initiated a heated discussion about unsettled Target2 clearing balances of the EMU. In Bundesbank President Jens Weidmann’s (2012) words: “Target2 is the grid through which the liquidity in the euro area circulates. With this payments system cross-border central bank money is transferred between the national central banks within the currency union. This liquidity arises in the individual countries predominantly through the national central banks’ refinancing operations with commercial banks.” The Target2 balances are interest-bearing public loans that are being used to finance current account deficits and capital flows (Sinn 2011a). Before the crisis, these balances more or less offset each other or were settled through the private interbank market.⁶

Since 2011, the private interbank funding has dried up. As a consequence, this EMU clearing has stopped functioning and large positive Target2 balances have arisen with the national central banks in the four northern EMU countries—Germany, the Netherlands, Luxembourg, and Finland—and corresponding big negative balances with eight other countries—Italy, Spain, Ireland, Greece, France, Portugal, Belgium, and Austria (Sinn and Wollmershäuser 2012). The causes of these balances are current account deficits of the southern countries as well as transfers of bank deposits from the south to the north (Davies 2011). These accumulated balances now exceed €1 trillion, and Germany’s surplus alone corresponds to one-third of German GDP. At the same time, the euro-system has lowered its standards for the quality of collateral and the average maturity of transactions has soared from a few weeks to almost three years (Weidmann 2012).

What do these balances actually mean and what, if anything, should be done to them? Sinn (2011a) argued that “the Eurozone payments system has been operating as a hidden

bailout whereby the Bundesbank has been lending money to the crisis-stricken Eurozone members via the Target system.” He stated “these claims would probably be lost should the euro collapse” (Sinn 2011b). “No one knows what these claims will be worth in the event of a Eurozone breakup” (Sinn 2012). He and Weidmann worry that these large balances no longer amount to liquidity provision to solvent commercial banks but bail out banks that are not solvent. They are concerned about potential German costs, credit emission, and inflation. Sinn has alternatively proposed to cap the Target2 balances, settle them in hard assets, or transform them into short-term eurobonds.

Karl Whelan (2011) and others oppose Sinn. They argue that the Bundesbank “has claims on the ECB system as a whole, not on individual national central banks. And these debts are collateralized by holdings of [southern] government bonds” (Davies 2011). Whelan points out that limiting a Target2 balance would amount to cutting out a country from the eurosystem. Similarly, Ulrich Bindseil, Philippine Cour-Thimann, and Philipp König (2012, 84) write that “a limitation of T2 positions would call into question the monetary union. A regular settlement has the same effect as a limitation and would basically transform the monetary union into a system of fixed exchange rates in which the solvency of a country would be limited by its stocks of gold and foreign exchange.” A euro in such a peripheral country would no longer be worth as much as in a northern surplus country.

Legally, Whelan’s interpretation is presumably correct, but it is hardly reassuring. Since the Lisbon Treaty does not contain any stipulations for the dissolution of the EMU, it is not evident what law would apply to these balances if the euro area did break up. If the ECB were to collapse in the breakup of the EMU, which is perfectly plausible, the main creditor would no longer exist. Moreover, the southern countries would in all probability default on their bonds in such an event, sharply reducing the value of any collateral held as sovereign bonds.

The collapse of the ruble zone may be instructive. The accumulation of large uncleared balances of dubious character is typical of a currency zone in crisis. Such accumulations occurred both between the former Soviet republics and domestically in each republic. The former Soviet republics agreed to coordinate their issue of credit, but they all failed to comply with their agreement. As a result, competitive credit issue ensued, leading to hyperinflation.

All the former Soviet republics had large current account deficits with Russia. Until the ruble zone collapsed in September 1993, Russia financed them all. In 1992, Russia’s credits to the other former Soviet republics amounted to 9.3

6. The best simple explanation is Wolf (2011b).

percent of its GDP. Formally, the gains of the other states were enormous, ranging from 11 percent of GDP in Belarus and Moldova to 91 percent of GDP in Tajikistan (IMF 1994, 25). In reality, however, no country benefited from this flow of money, which contributed to hyperinflation in all of them. The former Soviet republics were encumbered with large bilateral debts to Russia, which they renegotiated for many years. Much was written off, but this accidental debt burden was cumbersome for the debtor countries (Åslund 1995).

Conversely, Slovenia and Croatia had large current account surpluses in relation to Serbia, which responded by emitting far more credit rather than paying in real terms. Serbia's credit emission in turn persuaded Slovenia and Croatia to abandon the Yugoslav dinar (Pleskovic and Sachs 1994).

...in order for a banking union to become credible, EMU members need to offer a joint and several guarantee that they will do whatever is needed to maintain the EMU. The risk of any exit from the EMU must be firmly denied.

Domestically, post-Soviet Russia had a clearing system that could not manage all the new payments, and large arrears accumulated in the so-called *Kartoteka II*, a payments system that registered all payments in the order of their entry. The reasons for their accumulation were twofold. The old manual payments system could not manage the many payments that arose with a multitude of new enterprises. The other cause was that enterprises no longer wanted to pay if they could avoid it and happily delayed payments. Reformers argued for these arrears to be transformed into interest-bearing loans of a limited duration to clear the system (Sachs and Lipton 1993, 145), but the dominant Russian view was that they should be financed with new monetary emission as indeed happened, which resulted in high inflation (Rostowski 1994). Neither of these causes has anything to do with the current euro crisis. The EMU clearing system has the advantage of going through the national central banks so that the national payments mechanism would not necessarily be destroyed. Yet, the point is that uncleared payment balances provoked monetary emission and may do so again.

Sinn has made an important contribution by drawing attention to these large unsettled balances. In one way or the

other, they are likely to cause big losses to the creditor countries. If the EMU were to break up, the likely outcome would be negotiated settlements drawn out over years resulting in large writedowns.

However, Sinn has come up with one very dangerous proposal, to cap the national Target2 balances. The Russian reformers (Yegor Gaidar and Boris Fedorov) tried to do exactly that by setting ceilings on the credits from the Central Bank of Russia to the other post-Soviet countries in order to limit Russia's losses, but their aim was to break up the ruble zone. Indeed, the consequence was that the ruble zone fell apart, but only slowly, which is the worst case. The outcome was monetary pandemonium. No such limit on a clearing balance is permissible in a currency zone. Nor is it permissible to ignore these balances, as Whelan seems to suggest, because then Sinn's arguments would become all the stronger. These balances can become real.

Sadly, both Sinn's and Whelan's lines of argument are likely to contribute to the disruption of the euro area. Sinn's argument is a straightforward copy of the Russian breakup of the ruble zone. Whelan, on the other hand, reinforces arguments like Sinn's by ignoring the problem of uncleared Target2 balances. These balances would explode if not handled. Unfortunately, no current statistics of Target2 are publicly available so we are left with the statistical crumbs from the publications of officials in European central banks.

The best resolution would be the adoption of the complete US Federal Reserve System, which is much discussed.⁷ Sinn (2011b) agrees: "Only the American alternative is viable." A step in that direction would be the formation of a banking union, that is, the establishment of a European correspondent to the US Federal Deposit Insurance Corporation with its deposit insurance, bank regulation, and bank resolution as well as a European bank bailout institution.

Such a solution was outlined at the Euro summit on June 28–29, 2012, but the decisions were not complete. A full-fledged banking union should weaken the rationale for the current steady bank run in Southern Europe. Yet in order for a banking union to become credible, EMU members need to offer a joint and several guarantee that they will do whatever is needed to maintain the EMU. The risk of any exit from the EMU must be firmly denied (Portes 2012). The chronic current account deficits need to be resolved by other means—stricter fiscal control in the southern countries and some fiscal easing in the northern countries. The European Union and EMU have sufficient means to force any member to pursue rigorous fiscal and structural policies.

7. I owe this point to Edwin Truman.

A POSSIBLE DOMINO EFFECT LEADING TO THE BREAKUP OF THE EMU

The current debate focuses on the possibility of Greece departing from the euro area, but that is not all too likely. Greek public opinion is strongly in favor of the euro and nobody has more to lose from exiting the EMU than the Greeks. A necessary additional default for public and private creditors can and should be done within the euro area.

The European Union and the International Monetary Fund (IMF) have been incredibly soft on the Greek government. They forced Greece to reduce its public expenditures by only 0.1 percent of GDP from 50.2 percent of GDP in 2010 to 50.1 percent of GDP in 2011, according to Eurostat, although its budget deficit was 9.1 percent of GDP and its public debt extraordinary at 165 percent of GDP. The difference in EU/IMF treatment of Latvia is staggering. Latvia was forced to undertake fiscal adjustment of no less than 9.5 percent of GDP in 2009 (Åslund and Dombrovskis 2011, 107).

If Greece were to leave the EMU, it would have to cut public expenditures viciously. Considering that Greek GDP per capita at current exchange rates is still three times larger than in neighboring Bulgaria and Turkey, a two-thirds cut in Greece's GDP would not seem implausible. Within the EMU, by contrast, Greece might have to endure a GDP contraction of 10 percent or so on top of the 15 percent already incurred, which is a far more attractive option. In addition to bailout funds and the costs of EMU disruption, Greece would lose a few percent of GDP annually in EU structural funds, agricultural subsidies, and other grants. For all these reasons no Greek government should even think of abandoning the euro.

Regardless of whether Greece, Finland, the Netherlands, or any other country leaves the EMU, voluntarily or not, a 10-step domino effect is likely to ensue. I shall use a Greek exit as the standard case.

1. If one country (Greece) departed from the EMU, or if its Target2 balances were capped, the current slow bank run from the south would accelerate quickly. At least four more countries would likely experience *a massive bank run* (Spain, Ireland, Italy, Portugal, and perhaps France). Under these circumstances, everyone would try to take out cash from southern banks, which would presumably go under. Their governments would have no choice but to close the banks for a prolonged bank holiday and the banking system would stop working. At least Southern Europe's banking system would close the day after any country declared its intention to exit the EMU, and then the whole European banking system would probably close down.

2. As a consequence, the *EMU payments system would stop functioning* because it is centralized to the ECB. Reestablishing a payments system is both politically and technically difficult. Jeffrey Sachs and David Lipton (1993) elaborated on what was needed to restore the Russian payments system after communism, and it took three years to reestablish the payments system between the post-Soviet states. After the Russian financial crash of August 1998, Russia's domestic payments system broke down again for three months. Most payments had to be made in cash dollars.

3. In the face of the combination of a wild bank run and a collapsing EMU payments system, all people and enterprises would transfer money abroad. All weak EMU governments would have no choice but to impose strict *currency controls*, which are prohibited in Article 63 of the EU Lisbon Treaty but allowed in the case of emergency in Article 65, and this would be a true emergency. All EU countries would presumably impose capital controls as half of the EMU countries would try to conserve some currency, while the other half would try to block excessive capital inflows that would cause harmful appreciations of their new currencies. Capital controls would block most trade and transactions for months, and the common capital market would be broken up.

4. With these events the European interbank market would come to a standstill, which would in all likelihood cause a new global *liquidity freeze*, worse than the one that struck after the Lehman Brothers bankruptcy in 2008 and froze international liquidity for half a year. The freeze could bring down many of the already weak European banks.

5. If the drachma were reintroduced in the midst of a severe financial crisis, its exchange rate would fall like a stone, because Greek currency reserves are minimal. An uncontrolled devaluation could result in a *depreciation of 50 to 80 percent*. To judge by the devaluations in Indonesia (1997), Russia (1998), and Argentina (2001–02), a depreciation of 75 to 80 percent would seem likely in Greece. Others would follow. Cliffe et al. (2010, 13) assume a devaluation of 80 percent for Greece, 50 percent for Spain, Portugal, and Ireland, 25 percent for Italy, and 15 percent for France in relation to a renewed Deutsche mark. This is a strong reason for Germany never to let the breakup happen.

6. Given the openness of the European market, many prices are set internationally, and a vicious depreciation-inflation cycle would ensue. Excessive depreciation would bring *high inflation*, possibly in the triple digits, *or even hyperinflation*. In 2011, Belarus devalued by nearly 70 percent, and its inflation rose to 110 percent. Note that hyperinflation in most of the successor

countries has been the normal outcome of the breakup of a complex currency union.

7. Companies would suffer from the liquidity freeze, and domestic demand and global trade would collapse as it did from September 2008 to March 2009. Companies with debt in foreign-denominated euro would be exposed to significant currency mismatches, and many would be forced into *bankruptcy*.

8. *Output would plunge.* As a consequence of these three factors—bank crisis, bond market crisis, and a trade slowdown—a deep European recession and rising unemployment (which is already 11 percent of the labor force) would appear inevitable. EU GDP fell by 5 percent in 2009, and the drop could be far worse this time since the origin of this crisis would lie in the European Union and many resources have been exhausted. In Greece, unemployment would skyrocket and euro wages would plummet to a fraction of their previous level.

9. *A new Greek default* would appear inevitable. If the value of the new Greek currency fell by only 50 percent in relation to the euro, the now foreign-denominated public debt to GDP ratio would double to 330 percent of GDP, while output and state revenues would plummet. The budget deficit would expand, and without any financing the only option would be truly severe austerity. With such an economic contraction, the public finance situation would deteriorate severely. Since the public debt of the euro area has already reached 89 percent of GDP, several countries would probably be vulnerable to default. The countries with more than 100 percent of GDP in public debt—Italy, Ireland, and Portugal—are obvious candidates, but most countries in the EMU could enter dangerous territory. Dabrowski (2012) states: “A departure from the Eurozone would mean an immediate default on all public and most private liabilities as old contracts would remain denominated in Euro. Any attempt to redenominate them involuntary into the new weaker currency...would involve serious legal objections....”

10. These developments would strain any country, but Greece also suffers from substantial corruption and little trust in the political system. It ranks 80th on the Corruption Perceptions Index of Transparency International (2011). Its fragile *political system and social fabric could easily unravel*. The closure of banks throughout Europe could easily incite riots in numerous countries.

The Lisbon Treaty contains no provision for exit from the EMU. Nor is there an international forum for sovereign arbitration on financial issues. This legal vacuum would have to be filled with political agreements between a departing country

and the other EU and euro area countries. But such negotiations would be prolonged—easily two years, judging by the European Union’s tardiness in responding to the euro crisis in the last two years. Meanwhile all legal issues would be hanging in the air. Contracts for hundreds of billions of euros would remain in dispute. Eventually the contracts might be tested in courts, but that would take time, spreading uncertainty over thousands of companies facing bankruptcy.

The two critical steps in the chain reaction or domino effect... are the bank run and the collapse of the payments mechanism.

Would the rest of the European Union let a country departing from the EMU stay in the European Union itself? The single market would presumably fall apart if countries defended themselves against underpriced imports from countries that underwent major depreciation. Financially weak countries would naturally limit their reserve losses through large depreciations. Little would remain of the customs union. The unified labor market and the Schengen visa area would probably fall asunder as well. What would remain of the European Union?

The two critical steps in the chain reaction or domino effect outlined above are the bank run and the collapse of the payments mechanism. The markets have already proven that they do not differentiate all that much between Greece and other potentially weak countries because eight countries (Italy, Spain, Ireland, Greece, France, Portugal, Belgium, and Austria) have large negative balances in Target2. Bank runs would hit most of them. The EMU does not have any solid firewall to stop such a run, which would be extremely fast if it were to take place. The positive Target2 balances are concentrated to four countries—Germany, the Netherlands, Luxembourg, and Finland—with five small countries close to balance (Sinn and Wollmershäuser 2012). They would be overwhelmed by capital inflows, which would compel massive appreciation if the EMU were to break up.

The question of how many countries would leave the EMU in this situation of grave imbalance has only two plausible answers: *none or all*. If one country left, a huge currency risk would be introduced, and the pressure for the next country to leave would be overwhelming. Currency flows and liquidity freezes would necessitate the breakup, and it would all happen in infuriating speed. Therefore the rest of the European Union should not even think of kicking Greece out of the euro area, as some prominent German politicians have threatened, or face a Greek exit.

C. Fred Bergsten (forthcoming) has argued that Greece's "ability to remain within the zone is clearly more problematic. Greek exit would probably strengthen the zone" because the other members would build up a sufficient firewall to prevent contagion, and "the horrors of the impact on Greece" would

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inspire the others to do what it took to put their own economies in order. First, the Greek government seems to understand that an exit would be connected with huge costs, as outlined above, and the European Union and EMU have many means by which they can make Greece comply with necessary economic discipline.

Second, a Greek exit would introduce a big currency and exchange rate risk in the euro area. The already existing contagion that is evident from the massive capital outflows from the crisis countries would become horrendous. The other EMU members would be well advised to build the firewall big enough to keep Greece in the EMU, because otherwise it would be far more costly.

Third, the effects on the rest of the European Union would proliferate throughout banks, bond markets, trade, public finance, and politics. They would be entirely negative and truly formidable. No German politician who allowed such a catastrophe to fall upon Europe is likely to be reelected.

Fourth, even if the horrors of the impact on Greece induced other debtor countries to reform further, they would have to reel under the immediate disaster, because reform measures inevitably take time. European politicians who would have brought their countries into such a disaster would have no credibility left since they would be judged by their actions, as is usually the case in a severe financial crisis. Anything positive that could be done after a Greek exit could be done more effectively before such an event.

In the three hyperinflationary currency union collapses, however, it was not the weak countries that left first but small and comparatively wealthy countries: Czechoslovakia from the Habsburg Empire, first Slovenia and then Croatia from Yugoslavia, and Estonia, Latvia, and Lithuania from the former Soviet Union. These countries were also the most successful both economically and politically. When the game is over, there is no benefit in delay or in remaining loyal to nothing, or in waiting for an elusive collective accord. The countries that departed early acted fast and resolutely. They quickly established

their own independent central banks, exchanged the denomination of all accounts, and stamped their banknotes or issued new banknotes. The last countries in these currency areas were flooded with the old currency, which unleashed hyperinflation.

The most obvious parallels to these early leavers from previous collapses would be Finland or the Netherlands, which have stood out with their fiscal and economic virtues. Some of their citizens ask for how long and how much they will pay for fiscally irresponsible EMU countries. Relative to its GDP, Finland has about as large Target2 balances as Germany. While the Netherlands is surrounded by EMU countries, Finland has two economically successful countries with floating exchange rates and inflation targeting, Sweden and Norway, as neighbors. What they may not think of is that they also benefit through lower bond yields and larger exports and that the costs of a disruption of the EMU will hit them as well.

It is more difficult to convince the citizens of a small northern country to stay in the EMU. They would benefit from cutting off direct financing of bailout programs for countries in crisis, but then they would lose access to such financing when they may need it themselves in the future. Cliffe et al. (2010, 9) estimated the direct cost for the Netherlands of an EMU breakup at 12 percent of its GDP, and the cost to Finland would probably be in the same range. Rather than continue benefiting from the open European market, these countries would face a disrupted and much less open international market. Furthermore, their exchange rates would rise and render them less competitive on the global market.

The global depressive effects of EMU dissolution would be big and should be a reason for all to oppose such an event. For 2012, the IMF cut projected global growth by 1.2 percentage points because of the euro crisis, which alone is \$1 trillion, and that is even before the EMU has collapsed (Truman 2012a). Similarly, for 2013, it lowered its forecast from one year earlier by 1.5 percentage points, meaning a loss of global GDP of \$1.1 trillion (Truman 2012b). Cliffe et al. (2010, 9) estimated the total cost to the United States of an EMU breakup at 3 percent of US GDP. A reasonable assumption would be that global output would moderate by at least a few percentage points if the euro area really collapsed.

**HOW WOULD THE EURO AREA BE BEST
DISSOLVED?**

Hopefully, the EMU can survive and its governance can improve because a breakup would be a monumental tragedy for Europe. Yet the risk exists and policymakers need to consider how to minimize the damage of such an economic disaster. Therefore it is necessary to think through how a breakup of the EMU would be best undertaken. In general, if it were to become inevitable,

it should be done as amicably, cleanly, symmetrically, and as fast as possible.

The big difference between the present time and the previous currency zone breakups is that money flows today are so much faster and larger. Everything will happen immediately. Little can be planned for a breakup in advance because the risk of leaked information would be great, and enormous amounts of money could be transferred in no time. The whole financial system in the area involved would need to be shut down until the exchange of currencies had taken place, akin to Franklin D. Roosevelt's bank holiday from March 6 to 13, 1933 or the closure of foreign exchange markets for nearly two weeks in February–March 1973 before floating exchange rates were introduced. But can a bank holiday be effective in today's multiple and fluid markets?

If any country exited from the euro area, the latter would probably collapse altogether, and then it would only benefit all countries to leave quickly.

If any country exited from the euro area, the latter would probably collapse altogether, and then it would only benefit all countries to leave quickly. It would be better for all of them to exit together and do so amicably. Any delay would impose extra costs in terms of uncertainty and rent-seeking speculation. The ideal dissolution of a monetary union was the partition of Czechoslovakia in 1993, which was amicable and orderly. And it was fast and simple, but today everybody would have to move much faster. If the need for dissolution of the euro area appears inevitable, all countries should agree on an early exit date.

Fortunately, all the euro countries still have fully equipped central banks, which should greatly facilitate the process of recovering their old functions—distribution of bank notes, monetary policy, maintenance of international currency reserves, exchange rate policy, foreign currency exchange, and payment routines.

Much discussion has been devoted to the need for a northern and southern euro, but in the midst of a terminal euro crisis, the only plausible option would be a wholesale breakup, in which each country reverts to its old national currency. Credibility is crucial for a currency, and after the euro itself has failed, any subordinate euro or other new currency would have great difficulty gaining credibility in such a chaotic situation. To become credible any renewed currency would require both strict austerity policies and dollar

liquidity. A currency is useless if it does not imbue the holder with confidence and a stub euro cannot gain confidence when the main euro has failed.

Traditionally, new banknotes are circulated after a currency reform. They have been of three kinds: stamped old banknotes (done in Czechoslovakia after World War I and again in the Czech Republic and Slovakia in 1993); new provisional banknotes (in most post-Soviet states in 1992 and 1993); or real banknotes, the ideal and eventual solution.⁸ The situation is worse today. Who would volunteer euro banknotes to be stamped as substandard currencies? With modern printing technology any provisional banknote can be counterfeited instantly. New reliable banknotes cannot be printed for at least three months for technical reasons, and such a step cannot be taken in advance of a currency reform because the information would leak and cause devastating capital outflows. Thus Greece would have no banknotes for a few months, while the bank and payments system would not be working. Presumably, the Greeks would hang on to their cash euros and smuggle in cash euros from abroad. It would be very difficult to reestablish any credibility of a drachma.

A question everybody would pose: Why exchange euros for an uncertain new local currency and not for a known entity such as the US dollar? “Despite its formal status as legal tender, a new currency might not be accepted by economic agents who would prefer to continue using the Euro or another foreign currency.” Without “tough monetary and fiscal policies...a new currency would rapidly depreciate which could lead to high inflation or hyperinflation” (Dabrowski 2012). Initially, considerable demand for dollars would be inevitable, but the postcommunist lesson is that people reasonably quickly accept using local currencies as long as the interest rates in the national currency are competitive and the exchange rate is allowed to appreciate. The renewed central banks would need to regain credibility by pursuing a responsible monetary policy. This would mean far stricter austerity than the European Union has seen so far. To begin with, interest rates would have to be higher than in US dollars to attract funds, keep inflation down, and give the new currency credibility. The new central banks would require swap lines in US dollars, which would be a big issue for the US Federal Reserve and the US Treasury.

If only one country, Greece, departed from the EMU, the likely outcome would be spontaneous unilateral euroization, which could later be formalized, but without membership of the

8. The euro banknotes are designed by one letter for each country, Y for Greece, just as US banknotes formally pertain to one of the regional Federal Reserve Banks. But these markings have no practical significance because the banknotes circulate throughout the euro area without any particular concentration to any country.

EMU, as has happened in Montenegro and Kosovo. If the EMU as a whole broke up, the dollar would presumably become all dominant. In communist Eastern Europe, one foreign currency dominated on the black market in each country, the Deutsche mark in Yugoslavia and the US dollar almost everywhere else, because black markets do not want many alternative currencies.

A major issue would be what assets to denominate in what currency. The basic principle must be that all euro assets on the territory of one nation be denominated in the renewed national currency. All unnecessary currency mismatches must be avoided. Fortunately, “[a]lmost 99% of Euro area debt (sovereign and corporate) is issued in local currency. These securities will be governed by local law and therefore exposed to denomination risk” (Normand and Sandilya 2011). However, after debt restructuring, international law governs almost all Greek public debt. Foreign law typically governs foreign currency debt and contracts. The remaining problem is all the euro assets, contracts, and cash not clearly connected with any country. The best solution would probably be a commonly agreed formula among the EMU countries for how much of such an asset would pertain to each EMU country.

With the introduction of many new currencies of unknown and probably vacillating value, substantial new currency risks would be introduced. Major currency mismatches between all kinds of assets would arise, causing considerable disruptions on their own. All economic subjects—governments, corporations, and individuals—would face these large, variable, and little-known currency risks.

The devastation of the ruble zone, Yugoslavia, and the Habsburg Empire was brought about by the uncoordinated issuing of currency by several central banks, which led to hyperinflation. Thus, it would be vital to maintain the monetary emission authority of the ECB until the actual dissolution of the euro area. But it would be equally important for the ECB to lose that authority once the euro area broke up. Then the national central bank in each country should take over all monetary responsibilities of the ECB. No currency zone can persist without a unified monetary authority.

Is there an alternative? Theoretically, Europe could regress to the European Payments Union of 1950–58, before the European currencies became convertible. It was a multilateralized bilateral clearing system with a common working capital for credits provided by the United States as a part of the Marshall Plan (Hogan 1987).⁹ The payments system could be frozen, full convertibility abandoned, and a trillion euro clearing capital lent by the IMF, the United States, or the G-20. Excessive imbalances would be dealt with regulated exchange rate corrections or trade

sanctions. In reality, however, this appears unrealistic. No such decision could be taken fast enough to preempt the inevitable capital flight, and then the plan would fail before it was even attempted. Moreover, the required assets could hardly be raised, and whoever delivered them would in effect make Europe its protectorate, which would make the European Union turn the proposal down.

Any attempt to cap national clearing balances would lead to differing values of a euro in various countries, which would be a dangerous step toward the breakup of the euro area.

In the end, no velvet divorce is likely. No serious politician is likely to promote a dissolution of the euro area unless forced to do so, because no one wants to risk going down in history as the person who destroyed the EMU or the European Union. This is most of all true of German politicians. Therefore, if the euro area breaks up, a messy collapse is most likely to ensue.¹⁰

CONCLUSION: MAINTAIN THE EURO AREA AT ANY COST

The Economic and Monetary Union must be maintained at almost any cost. All the economic problems in the current crisis can be resolved within the EMU. A devaluation may be only a palliative or a postponement of resolution of the real problem, as has so often been the case, while the costs of the dissolution of the euro area could be truly monumental. The exit of any single country from the EMU, at the present time when large imbalances have been accumulated, would likely lead to a bank run, which would cause the EMU payments system to break down and with it the EMU itself.

In order to maintain the euro area, EMU-wide clearing must be maintained in full. The exponential rise in the accumulated Target2 balances is a major concern because the resulting strains within the EMU may lead to its breakup. The Target2 balances should be resolved by reforms such as a banking union, fiscal adjustments, and guarantees so that the EMU will be maintained. The natural way of resolving the Target2 issue would probably be to truly consolidate the

9. I owe this idea to Juan Carlos Martinez Oliva.

10. Thomas Wright (2012) has elaborated on the broader political consequences of an EMU and EU failure.

balance sheets of the European System of Central Banks, akin to the US system. Any attempt to cap national clearing balances would lead to differing values of a euro in various countries, which would be a dangerous step toward the breakup of the euro area.

Finally, the reasons that would prompt the euro area to break up would be that EMU governance has failed completely, that one nation decided to leave, or that speculative forces broke it before policymakers could act. The exit of any country is not likely to be isolated. Therefore, if the breakup starts, it would be better to agree on a complete and speedy dissolution into the old national currencies, because a stub euro is not likely to gain credibility fast enough. Either none or all leave the EMU.

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