

UBS Investment Research

Global Economic Perspectives

Euro break-up – the consequences

■ **The Euro should not exist (like this)**

Under the current structure and with the current membership, the Euro does not work. Either the current structure will have to change, or the current membership will have to change.

■ **Fiscal confederation, not break-up**

Our base case with an overwhelming probability is that the Euro moves slowly (and painfully) towards some kind of fiscal integration. The risk case, of break-up, is considerably more costly and close to zero probability. Countries can not be expelled, but sovereign states could choose to secede. However, popular discussion of the break-up option considerably underestimates the consequences of such a move.

■ **The economic cost (part 1)**

The cost of a weak country leaving the Euro is significant. Consequences include sovereign default, corporate default, collapse of the banking system and collapse of international trade. There is little prospect of devaluation offering much assistance. We estimate that a weak Euro country leaving the Euro would incur a cost of around EUR9,500 to EUR11,500 per person in the exiting country during the first year. That cost would then probably amount to EUR3,000 to EUR4,000 per person per year over subsequent years. That equates to a range of 40% to 50% of GDP in the first year.

■ **The economic cost (part 2)**

Were a stronger country such as Germany to leave the Euro, the consequences would include corporate default, recapitalisation of the banking system and collapse of international trade. If Germany were to leave, we believe the cost to be around EUR6,000 to EUR8,000 for every German adult and child in the first year, and a range of EUR3,500 to EUR4,500 per person per year thereafter. That is the equivalent of 20% to 25% of GDP in the first year. In comparison, the cost of bailing out Greece, Ireland and Portugal entirely in the wake of the default of those countries would be a little over EUR1,000 per person, in a single hit.

■ **The political cost**

The economic cost is, in many ways, the least of the concerns investors should have about a break-up. Fragmentation of the Euro would incur political costs. Europe's "soft power" influence internationally would cease (as the concept of "Europe" as an integrated polity becomes meaningless). It is also worth observing that almost no modern fiat currency monetary unions have broken up without some form of authoritarian or military government, or civil war.

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Breaking up the Euro

“I am sure the Euro will oblige us to introduce a new set of economic policy instruments. It is politically impossible to propose that now. But some day there will be a crisis and new instruments will be created.” Romano Prodi, EU Commission President, December 2001.

The Euro should not exist.

More specifically, the Euro as it is currently constituted – with its current structure and current membership – should not exist. This Euro creates more economic costs than benefits for at least some of its members – a fact that has become painfully obvious to some of its participants in recent years.

The Global Economic Perspectives draws on the research UBS has published over the past fifteen years looking at the issues surrounding the Euro and its existence. If the Euro does not work (and it does not), then either the current structure needs to change, or the current membership needs to change. Rather than go through the options for keeping the Euro together (fiscal confederation being the central idea, and our base case), we look at the consequences of attempting to break up the Euro.

The problem with the Euro

Why consider break-up at all? Break-up occurs because the Euro does not work. Member states would be economically better off if they had never joined. European monetary union was generally mis-sold to the population of the Europe. In the 1990s the Euro was often characterised as an instance of foreign exchange rate integration – the Exchange Rate Mechanism without the crises. The advantages of no foreign exchange rate uncertainties or costs for trade and tourists were emphasised. Of course the exchange rate integration was probably the least of the consequences of the Euro. The most important consequence was the integration of monetary policy. The hint was in the name “European Monetary Union”. However, politicians sought to ignore that hint. A Euro that had been promoted on the idea of monetary union rather than exchange rate integration would have been far more difficult to sell to the electorate.

A monetary union is, economically speaking, a “good” idea if the membership constitutes an optimal currency area. This occurs under one of two conditions. Either the area is so homogenous that the component economies all move in the same direction at roughly the same speed, at the same time. Alternatively, the economies are sufficiently flexible that any differences in economic performance can be relatively swiftly corrected.

The homogeneity is necessary because there is only one nominal monetary policy for the monetary union. If different economies are moving in different directions, or at different speeds, monetary policy can not be set optimally for the whole union. Some part of the monetary union will have an inappropriate monetary policy. If there is no homogeneity (and homogeneity is rare in anything other than a very small economy) then flexibility is required. If nominal economic activity in one part of the union deviates from the monetary

union norm, then some adjustment must happen to correct that and force normalisation. This adjustment can be through labour migration, nominal wage adjustments, price adjustments or (as is the preferred solution for the Euro given its circumstances) though fiscal automatic stabilisers.

In the absence of such adjustments, some areas of the monetary union will suffer a persistently inappropriate monetary policy. It was the great misfortune of the Euro that the early years of its life saw a monetary policy that was biased towards being too accommodative for some of its members. The consequence of this is that the problems of the monetary union were hidden under the politically expedient cloak of “this time it’s different”, and asset bubbles built. Politicians generally will only recognise the existence of economic threats when they come garbed with immediate negative consequences – this is why politicians are so eager to ban the short selling of assets. Politicians generally fail to appreciate that economic threats can also wear a (temporarily) positive appearance, in the form of bubbles. These are just as damaging as negative price moves – yet for some reason “rising asset markets” that misprice assets are politically perceived as good, while “falling asset markets” that misprice assets are politically perceived as bad. Even today, politicians who rush to ban naked short positions would not dream of banning naked long positions.

As a result, the Euro spent the first decade of its existence largely oblivious to the serious economic threats posed by its dysfunctional nature. The Euro even expanded (making it economically worse and worse). The crisis predicted by Romano Prodi was therefore even more virile when it did emerge.

The disaster scenario – break-up and consequences

Inevitably, as the Euro today does not work and the crisis has assumed greater magnitude than perhaps it needed to, the argument is often heard that it would be better to break up the monetary union (either completely fragmenting the monetary union, or having one or more states leave). The political and popular debate about break-up frequently misrepresents the position. Because of the misperception of the Euro as some sort of super Exchange Rate Mechanism, its break-up is often presented as having few more severe consequences than the ERM crises and partial fragmentations of 1992-93. Popular misconceptions include the idea that a country will be able to stimulate growth by simply leaving the Euro, that a country can be expelled from the Euro by other member states, or that a strong economy could leave the Euro without significant consequences. All of these arguments are wrong.

We believe that some kind of fiscal union (or “fiscal confederation”, which has a reassuringly Swiss sound to it) is going to be required to save the Euro. We have repeatedly put forward the rationale for this¹. As the popular debate continues to suggest the possibility of break-up², it is worth examining what this would actually entail were it to transpire.

¹ See the list of publications at the end of this piece for details of our work on the Euro’s structure and existence

² Only this week the German magazine Der Spiegel suggested that some government lawmakers want to be able to expel a Member State from the Euro. As we shall see, this suggestion is a function of misinterpretation of the

Break-up is not a simple process. Break-up could mean complete fragmentation, or it could mean secession by one or more states. Secession in turn could mean a strong state leaving, or it could mean a weak state leaving. The process could be sudden (a unilateral action) or it could be the result of negotiation. We look first at the legal issues involved, and go on to examine some of the general consequences of leaving. We then consider the specific problems of political rupture and civil disorder.

The legal position³

In theory the break-up of a monetary union like that of the Euro could be the result of one of two actions: the first would be a Member State or a group of States deciding to leave (secession); the second act would be the expulsion of a Member State or group of Member States by the majority of the union. As things stand, secession is highly costly and very difficult, and expulsion is impossible.

Hotel California

For the time being there is no provision in the relevant European treaties for a country to exit the Euro. There is certainly no provision for a country to be expelled from the Euro. Those who casually suggest that a weak country could be forced to leave either have not read the relevant legislation, or do not understand its implications. The objections that the economics profession so clearly raised against the Euro in the 1990s owed much to this irrevocable aspect of the union. Any mistake in membership is permanent. There are essentially three reasons why the founders of the Euro chose not to include an opt-out clause in the governing treaties:

- The existence of an opt-out would have been seen as a lack of commitment from Member States
- The existence of an opt-out – however structured – would have raised the possibility of a country exiting. Making the (currently) impossible possible would make the event (exit) more likely
- By failing to specify a technical mechanism for an exit, the costs of exit are significantly raised. The result is Hotel California: “you can check out ... but you can never leave”

Before looking at the details of the legal argument, we would note in passing that there is actually a third option, which would be a region of Europe, part of a Member State, declaring independence and exiting the Euro. The separatist Flemish party in Belgium explicitly wrote in its programme that the partition of Belgium would leave the new country in the Euro (a process that should be achieved peacefully!). But a scenario in which the partition of a Member State includes all or part of the fracturing state leaving the Euro could happen; it

status quo, and is not possible. Hans-Olaf Henkel, one of the litigants challenging the constitutionality of the Greek rescue package in the German courts, has suggested that Austria, Germany, Finland and the Netherlands exit. This is possible, but does not have the benign consequences Herr Henkel seems to assume.

³ A detailed examination of the legal position is given in the ECB's “Withdrawal and expulsion from the EU and EMU: some reflections”, available at <http://www.ecb.int/pub/pdf/scplps/ecblwp10.pdf>

would raise extremely complex legal issues for the new State, but also for the Member State that faces the secessionist demand. We will leave that scenario aside.

The no opt-out clause was put under scrutiny with the Lisbon Treaty. The Lisbon Treaty makes explicit reference to a withdrawal option for EU Member State in its Article 50. The treaty also provides guidance on the process of withdrawal; this will come from the initiative of the individual State, which will have to negotiate its withdrawal before approval by the Council and the European Parliament. There are however three legal points to note on this issue.

- Article 50 explicitly rules that the withdrawal comes from the individual Member State's initiative and willingness. This means that a Member State can exit, but it does not provide any legal base for a Member State to be expelled.
- More important, there are no details provided as to the actual mechanism of exit. The Member State has to negotiate its exit; there is no solution nor even a facilitation of the process proposed, just the option to embark on negotiations.
- Most important, Article 50 provides a legal framework for a country to leave the EU, but not one to leave the EMU. Some have argued that Article 50 provides a way to exit the EMU, but it also suggests that a withdrawal from EMU without a parallel withdrawal from the EU would be legally unfounded.

Reading the details of treaty it is even questionable whether article 50 could apply to EMU members or whether it is de facto only relevant for EU-non-EMU members. Indeed, although there is an explicit option to opt out from the EU, there is also an explicit provision in the treaty that the adoption of the Euro is "irrevocable". Some of these elements can be found in Articles 4(2), 118 and 123(4). Unless one assumes that there is an option to withdraw from the Euro, but this is a difficult argument to maintain given the above comment, it thus means that the interpretation most widely accepted of article 50 is that it de facto is not applicable for EMU countries.

Thus the only way for a country to leave the EMU in a legal manner is to negotiate an amendment of the treaty that creates an opt-out clause. Having negotiated the right to exit, the Member State could then, and only then, exercise its newly granted right. While this superficially seems a viable exit process, there are in fact some major obstacles.

Negotiating an exit is likely to take an extended period of time. Bear in mind the exiting country is not negotiating with the Euro area, but with the entire European Union. All of the legislation and treaties governing the Euro are European Union treaties (and, indeed, form the constitution of the European Union). Several of the 27 countries that make up the European Union require referenda to be held on treaty changes, and several others may chose to hold a referendum. While enduring the protracted process of negotiation, which may be vetoed by any single government or electorate, the potential secessionist will experience most or all of the problems we highlight in the next section (bank runs, sovereign default, corporate default, and what may be euphemistically termed "civil unrest").

Naturam expellas furca, tamen usque recurret⁴

Secession is therefore complex. What about expelling a country? Here again there is no legal basis for doing so. As we noted above, Article 50, provides an option to leave the EU but not one to expel a country from either the EU or the Euro.

Because the expulsion is not an option under current law, to expel a Member State requires an amendment of the Maastricht Treaty. Amending the Treaty requires unanimous consent – from all 27 countries of the EU. The country that is to be expelled would first need to vote in support of the expulsion mechanism. The country is effectively agreeing to its own expulsion – which makes expulsion secession. The problems of secession have already been detailed.

Even assuming a country does vote for an expulsion mechanism (a pretty heroic assumption), there is still a question as to whether expulsion could take place. There are a number of potential sanctions and remedies that can be imposed on an “errant State” – one key example often quoted is Article 7(2) and (3), which allow the Council to suspend some of a Member State’s rights (including its voting rights in the Council) for a “serious and persistent breach by a Member State of the principles mentioned in Article 6(1)” of the EU Treaty. But the letter and the spirit of the treaty are both unequivocally designed to force a country to comply with its obligations; these rules are not designed to punish. An expulsion clause, if added, would be inconsistent with the rest of the Treaty. A Member State (even one that has agreed to an expulsion amendment) could argue against the expulsion before the European Court of Justice, and on the basis of the inconsistency the European Court of Justice could declare the expulsion invalid. The economic consequences of a protracted renegotiation of the Treaty, an expulsion process and a legal challenge to that expulsion do not bear thinking about.

Leaving legally – no loophole

Leaving legally does not seem to be a viable option. The Treaties governing the Euro at the moment were designed so as not to have an exit option. Those Treaties can be changed, but the protracted process of change leaves the potential secessionist in a zombified limbo – in the Euro, bound by its rules, but with exit looming and investors reacting to that prospect.

The Euro is made up of sovereign states. As such, these states could choose to repudiate the Treaties that they have signed, and unilaterally declare independence from the Euro and the EU. The Southern Confederacy of the United States pursued just such a course, after all (and issued their own money in the process – the Grayback).

Unilaterally leaving – the weak country case

As any parent can testify, no matter how much logic one has to back one’s argument, there is no force on earth capable of overcoming the will of a toddler that juts out its lower lip, crosses its arms and yells “no” (or, if articulate,

⁴ If you expel nature with a pitchfork, she will return

“shan’t”). So what happens if a weak Euro area country simply decides that it does not want to play any more, cries “shan’t” and leaves the Euro?

Rationally, an economy would choose to leave monetary union if the costs of staying in exceed the costs of departure. Once a country has voluntarily surrendered its currency and its monetary policy independence to a common currency area, the costs of leaving that monetary union and establishing a new national currency (NNC) are huge. Some are certain, some merely probable. However, five of the main costs are summarized below.

It is worth pointing out that the fault lines for some of these costs could occur without a country actually leaving the Euro. If one country left, then speculation about other weak economies choosing to leave could then generate costs that are very similar to these. This means that it is very unlikely that a single country (or part of a country) leaves the Euro. If one country believes that the costs of membership exceed the benefits, then the act of crossing the Rubicon and leaving the Euro will then raise the relative costs of membership for other similarly positioned countries (or parts of countries). This would incentivise further departures.

1. Default on domestic debt

If a country chooses to leave the Euro, it has essentially two choices with regards to its domestic sovereign debt. The first is to leave the sovereign debt as it is – that is to say, Euro denominated. The problem with this approach is that the entire debt is then denominated in a foreign currency, over which the NNC country has no power of taxation. The only way of earning Euros would be through trade, which is likely to be significantly disrupted – and so default on the Euro denominated national debt is almost certain.

The second and more probable option is the forced conversion of Euro denominated debt into NNC debt. This would constitute a default in the eyes of most investors.

Default on sovereign debt – in either example – would generate lasting economic costs as the long-term cost of capital for the government would increase. However, inside or outside the Euro, some countries are likely to default. The increase in sovereign debt costs associated with a default could perfectly easily happen with the Euro in circulation (bond markets already price Greek debt as if it were about to default, for instance). What makes Euro exit more costly is the fact that as well as the sovereign default, there is also likely to be a corporate default.

The international cost of capital for domestic corporates is likely to be impacted – not only because of the “sovereign ceiling” (corporates rarely have higher credit ratings than their domestic governments) but also because of the nature of the default. If the government is changing the currency of the country, it will (in all likelihood) force the change on the domestic corporate sector, which will thus share the government’s default. Even if there is no force, a domestic company earning revenues in the NNC will have problems settling any debts that have been incurred with overseas banks.

Exiting the Euro is not going to take place with a small depreciation of the NNC. The idea that a 10% or 20% adjustment is all that is required is fantasy (why on earth would any country go through this much trauma for so small an adjustment?). We have to assume that the currency is debauched in the process – or, if its official value is maintained, that this is achieved by extreme capital controls (effectively rendering the currency unconvertible). The Soviet Union's rouble may provide a precedent. Either way, corporates will have problems meeting their non-domestic obligations.

2. Collapse of the domestic banking system

If the NNC is to function properly, the seceding government would have forcibly redenominated domestic bank deposits into the NNC – otherwise the NNC is an entirely abstract concept. The reality of implementing this becomes highly arbitrary. For instance, should only Euro accounts be forcibly redenominated, or should sterling and dollar accounts also be converted into the NNC? Post the NNC being established, the Euro is a foreign currency. If one foreign currency is to be converted into the NNC, why not convert all foreign currencies in the domestic banking system? Should the conversion apply only to domestic citizens, or to foreigners with accounts in the domestic banking system? What about foreigners with Euro accounts in an overseas branch of a domestic bank?

Confronted with the obvious uncertainties surrounding the establishment of a NNC, the obvious response of anyone with exposure to the secessionist banking system is to withdraw money from the bank as quickly as possible. This could be done electronically – unless the government puts in place stringent capital controls. In that event, the wise depositor anticipating the creation of a NNC would withdraw their money in physical Euro form, pack it into a suitcase and head over the nearest international border – unless the government seals their borders to the movement of people. In that event, the sensible depositor would withdraw their money in physical Euro form, pack it into a suitcase and bury it in their garden. The only way that can be prevented is to shut the banking system entirely, or perhaps place a limit on the amount of withdrawals that can be made over the transition period. This is what happened with the collapse of the US monetary union in 1932-33.

The only real way to prevent a run on the domestic banking system would be the introduction of the NNC as a “shock” event, which was entirely unanticipated by the world at large. Given the enormous complexity involved in introducing a NNC, this is not a practical possibility. Indeed, sudden deposit withdrawals have already been observed in parts of the Euro area on even vague suggestions of secession.

The banking system is also likely to be the most immediate transmission mechanism for the crisis beyond the borders of the seceding state. If bank runs and enforced conversions in the seceding state are witnessed elsewhere in the Euro, citizens of any Euro member state that is considered to be a possible candidate for secession would start to withdraw their bank deposits from their domestic bank system out of fear. Bank runs could spread before the actual act of secession, therefore, and become a catalyst for a more widespread crisis in the Euro financial system.

3. Departure from the EU

It seems highly unlikely that a government could leave the Euro and expect to remain a fully functioning member of the European Union itself. The act of leaving the Euro necessitates a unilateral breach of the Treaty of Maastricht, the Treaty of Lisbon and (by extension) the Treaty of Rome. The legal position, outlined above, is pretty clear on this point in the absence of revisions to the Treaty. Sealing borders to capital flows or the movement of people is also a breach of several European treaties (and thus European law). The whole process of introducing a NNC is clearly against the guiding principles of the European project. By leaving the Euro, the seceding country is breaching the constitution of the European Union (the Treaty of Maastricht forming part of the body of European constitutional treaties).

Discontents in the Euro area will often complain that the Maastricht and Lisbon treaties have already been broken with the ECB buying bonds, and deficit limits being breached. The point is that the letter of these treaties has not been broken. The intention may have been warped, but the ECB is allowed to buy bonds, and governments are allowed to run higher deficits. Indeed, these actions are explicitly permitted in the treaties. However, revoking an irrevocable monetary union is not something that can be construed as warping the intention but honouring the letter of the law. There is no room for manoeuvre. This is a clear and unambiguous breach of the European constitution.

It is often contended that this is too extreme a position. A country could leave the Euro and then negotiate to stay in the European Union. A cursory reality-check indicates that this is not true. The country that has seceded from the Euro has seceded from the EU – it can not negotiate to *remain* in the union. It could try to negotiate re-entry into the European Union. This supposes that a country that has unilaterally chosen to abandon the European Union, causing no little damage in the process, would be welcomed back by the remaining 26 members. It should also be borne in mind that technically, as the various treaties currently stand, the seceding country would have to agree to enter the Euro as soon as the economic conditions set out in the Treaty of Maastricht had been met.

Even supposing that the negotiations would be possible (which has to be considered improbable), they would certainly be protracted. The ratification would also require referenda to be held in several existing member countries. The seceding country would be left outside of the EU for a number of years.

4. Trade, tariffs and protectionism

The idea that a seceding state would immediately have a competitive advantage through devaluing the NNC against the Euro is not likely to hold in reality. The rest of the Euro area (indeed the rest of the European Union) is unlikely to regard secession with tranquil indifference. In the event that a NNC were to depreciate 60% against the Euro, it seems highly plausible that the Euro area would impose a 60% tariff (or even higher) against the exports of the seceding country. The European Commission explicitly alludes to this issue, saying that if a country was to leave the Euro it would “compensate” for any undue movement in the NNC.

It is also important to note that exiting the EMU, as we note above, means exiting the EU. This would leave the country departing with no trade agreement with Europe.

5. Civil disorder

To quote Keynes “Lenin was certainly right. There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency.” If a country has gone to the extreme of reversing the introduction of the Euro, it is at least plausible that centrifugal forces will seek to break the country apart. If some geographic regions or ethnic or linguistic groups wish to remain within the Euro, demands for a break-up of the country may ensue. It is certainly worth noting that several countries of the Euro area have histories of internal division – Belgium, Italy and Spain being amongst the most obvious.

It is also true that monetary union break-ups in history are nearly always accompanied by extremes of civil disorder or civil war. This is a point we will return to in the concluding section.

So what does it all mean?

Economic modelling is not good at dealing with something as extreme as the break-up of a monetary event. It is not really what models are designed for. However, with some basic assumptions we can attempt to quantify the cost for a weak country that chooses to leave the Euro.

We have assumed that a weak country leaving the Euro will see its currency fall by around 60% against the rump Euro bloc. A Euro exit should not be compared to the mild adjustments of the ERM convulsions in the 1980s or early 1990s. Instead, the appropriate parallel probably lies in the breakdowns of Latin America – Argentina or Uruguay in the early years of this century. A 50% to 60% loss in value of the currency seems reasonable when considered in that light.

The mass sovereign and corporate default would generate an increased risk premium for the cost of capital – assuming that the domestic banking system is in any way capable of providing capital. At a very conservative estimate, this would entail a 700bp risk premium surge. If the banking system is completely paralysed (again, Argentina provides some precedent, or the US banking system during the collapse of the US monetary union in 1932-33) then the cost of capital de facto increases an infinite amount. In the extreme paralysis of finance, capital is not available at any price.

We assume a decline in the volume of trade of 50%. This is based off secession from the EU, and an assumption that there will be some attempt on the part of the rump EU to impose tariffs to offset the currency depreciation of the seceding state.

Finally we assume that there is a cost arising from the banking system failure. If we take the Argentina example as a blueprint, the cost of recapitalising the banking system could be borne by depositors. Argentina enforced conversion of dollar accounts into pesos at the old official exchange rate, and then devalued against the dollar. The precise mechanism is not that important, but it does give a nice metric by which to shock the economy and generate a cost of stabilising

the banking system. In this case, with 60% depreciation the central case, we would assume a cost equivalent to 60% of bank deposits in the system. Of course, we are also assuming a run on the banks before secession takes place. If 50% of current deposits are withdrawn from the system before secession (or before the banking system is shut down in anticipation of secession) we can therefore impose a cost equivalent to 60% of 50% of current deposits.

Using the southern European countries as our benchmark, we can therefore come up with a very rough estimate of the cost of departure from the Euro. Taking all these factors into account, a seceding country would have to expect a cost of EUR9,500 to EUR11,500 per person when seceding from the Euro area. It should be borne in mind that while bank recapitalisation could be considered a one-off cost, the cost of higher risk premia and trade stagnation would be borne year after year. So the *initial* economic cost would be EUR9,500 to EUR11,500 per person, and then a cost of around EUR3,000 to EUR4,000 per person would be felt each year thereafter.

These are conservative estimates. The economic consequences of civil disorder, break-up of the seceding country, etc, are not included in these costs.

The economic argument if a strong country leaves

The cost of a weak country leaving the Euro would seem to be fairly horrific. However, if a strong country were to decide to leave, would the situation be any different?

The base assumption is that if a strong country were to leave, there would be an appreciation of its currency – on the assumption that the strong NNC would be desired (at least by other Euro area inhabitants) as a reserve currency. Certainly if a strong country leaves, we would assume an appreciation of the NNC relative to the rump Euro. This makes a trade-weighted appreciation highly likely (given the dominance of intra-European trade for Euro area countries as a starting point). Whether the NNC of a strong country also appreciates against non-Euro countries depends on the extent to which there is capital flight from the rump Euro into the NNC, the degree to which capital controls are imposed, etc. If we then examine the five consequences of leaving the Euro for a strong currency, we find a slightly different structure emerging.

1. Default on domestic debt

Unlike the situation of the weak country, there is no necessity for a strong country's government to default on its domestic debt. Indeed, the fiscal position potentially improves if the NNC appreciates against the Euro, as the Euro denominated debt falls relative to NNC tax revenues.

There is a question as to whether, politically, a government could repay domestic holders of its bonds in Euros after having exited the Euro. *Legally*, there is no problem with doing so, but politically bond-holders may be somewhat upset to be receiving an income in Euros but have obligations (including taxes) in the NNC. However, it is safe to say that even if the government exchanges domestically held Euro bonds for NNC bonds, the government will be no worse off in fiscal terms.

Corporate liabilities in Euros to foreign banks would also not be a problem – these would still be Euro denominated. Corporate liabilities in Euros to domestic banks would potentially be a problem, however. Those liabilities would have to be redenominated into the NNC, if the implementation of the NNC is to take effect. In converting to a new currency, the domestic banking system must embrace the NNC across the board⁵. Any company that has a significant proportion of its revenues deriving from euro denominated exports, but which has liabilities to the domestic banking system, is vulnerable to default. It is also worth noting that the balance sheets of companies will suffer, to the extent that overseas assets depreciate in NNC terms relatively rapidly in the wake of secession from the Euro.

2. Collapse of the domestic banking system

A strong secessionist is unlikely to see a run on its banking system, as there is no reason for depositors to withdraw their money over fear of its value being debauched. Indeed, to the extent that non-secessionist residents are able to evade capital controls, there may well be international inflows into bank deposits. However, this does not mean that the banking system survives the trauma of currency break-up intact.

The problem for banks is, of course, the balance sheet. A seceding country's banking system will now have NNC liabilities. Against that, however, will be a collection of assets from the former Euro area, some of which may have been redenominated into the NNC, but some of which will have remained in the rump Euro currency (or worse). If the NNC appreciates 40% or 50% against the rump Euro, it will almost certainly necessitate the recapitalisation of the banking system. That in turn will impose some fiscal burden on the seceding government (presumably) – which while it may not provoke default is likely to put some strain on domestic fiscal policy.

3. Departure from the EU

The same arguments apply here as applied to the weaker country. Legally one is either in the EU and the Euro, or one is not. There is no halfway house.

4. Trade, tariffs and protectionism

The strong seceding country would effectively have to write off its export industry. Outside the EU, the export sector of a strong seceding country is at a competitive disadvantage against its principal competitors in its principal export market. There is little reason to suppose that the rump Euro would welcome a continuation of the free trade aspects of the EU with an apostate state.

This trade shock is made worse by any appreciation of the NNC (ironically the problem that Switzerland faces today). This is exactly the issue that worried Germany pre-Euro. An exit from the EMU of a stronger country (or countries) would create severe tensions in rump Euro financial markets, encouraging a

⁵ If the banking system did not convert Euro loans into NNC, it would be left with Euro assets and NNC liabilities across its entire balance sheet, which would require substantial recapitalisation. The banking system must convert to the NNC if the NNC is to become the *lex monetæ* of the seceding country. Otherwise Gresham's Law would apply – bad money drives out good. Everyone would hoard the NNC and try to pass on Euros to settle all liabilities.

flight to quality. This capital flow would trigger a very rapid appreciation of the new currency. Not only would the currency move have a large adverse impact on the country's exports (loss of competitiveness, but also because of the jump in volatility), but also the central bank would lose part of the control it has on the monetary base.

As if were not bad enough, it is not plausible to suggest that a strong country could secede without any consequences for the former friends it has left behind. If a strong country was to leave it would mark a "crossing of the Rubicon" – a visible demonstration that the "irrevocable" monetary union can in fact be revoked. This would then immediately apply pressure to the weaker states in the Euro area, creating a further centrifugal force. The ensuing domestic demand consequences would probably mimic our scenario analysis, and in turn would remove export markets from play.

Thus, any strong country seeking to secede would have to assume that the majority of its export sector is wiped out in the process.

5. Civil disorder

Civil disorder in a strong seceding country is not perhaps as likely as in a weak currency. Savings have not been debauched, and the economic consequences are not necessarily so severe. However, there is likely to be considerable economic dislocation in this sort of a process. Unemployed workers from the export sector would likely swell the levels of unemployment (and potentially form structural unemployment, if their sectors go into terminal decline). Certainly there would be social tension in the wake of such a decision.

In addition, the disruption that ensues when a strong country has left would raise questions about economic problems in the remaining Euro area, and potentially (of course) the risk of pressure on other countries to leave the Euro.

So what does it all mean?

So what is the cost of a "stronger" country leaving? The same problems with modelling apply to a strong country departing as a weak country – this is such an abnormal event as to be all but impossible to simulate with any great certainty. However, we can make some assumptions about the basic costs. The seceding strong currency is likely to have an appreciation of 40%. This is a conservative assumption, as there would be attempts at capital flight into the strong currency in advance, but presumably in the disorderly circumstances of secession there would be some attempt at capital controls or regulation of the flows (the precedent here is the Czech Republic when the monetary union with Slovakia dissolved in the early 1990s).

The domestic banking system would be in urgent need of recapitalisation. This impacts the cost in two ways. First there is an increase in the risk premium. Clearly this is not going to be as dramatic as for a weak country leaving, but an increase of 200bp would seem to be a fair assumption, as banks ascribe a higher premium to existing risks, and contemplate an increase in the risk of default in the corporate sector. Second, there is the cost of recapitalising banks. Here we are interested in the marginal cost of recapitalising banks – which basically means looking at offsetting the impact on bank balance sheets of the consequences of the appreciation of the NNC. It is true that there may be some

liabilities denominated in the rump Euro, which German banks would be able to service more readily, which may diminish the impact. On the other hand, the risk of outright default on some of their assets (rather than ‘just’ a 40% currency move) also has to be considered.

Finally there is the trade impact. Some of the trade effect is captured with the appreciation of the currency of course, and so we are keen to avoid double-counting. However, if a strong economy like Germany leaves the Euro there are non-currency trade consequences. The exit from the European Union raises potential trade barriers and border disruption. Further, the exit causes a growth shock to the rump Euro, which undermines the export potential. We have assumed a 20% reduction in trade. This is very conservative, but it needs to be seen in the context of the 40% appreciation of the NNC, which will create an obvious *additional* drag on trade.

Taking Germany as an example of a stronger country, the combination of these costs works out at between EUR6,000 and EUR8,000 per person if Germany were to leave the Euro. As with a weak country leaving, the recapitalisation of the banking system can be considered to be a one-off event. However, the legacy of the risk premium and the problems of trade would entail a cost of between EUR3,500 and EUR4,500 per person per year after the initial shock.

To put this into context, if Greece, Ireland and Portugal all defaulted on their debt with a 50% haircut, and the remainder of the Euro area bought all outstanding government debt in the market (including IMF debt), that would generate a cost of a little over EUR1,000 per person in Germany. The banking system would have sold its debt (at market) to the remainder of the Euro area, which might entail some recapitalization requirements in addition to that, where banks have failed to mark to market existing holdings of bonds. However, the idea that the Euro area purchases all outstanding debt of the three countries and then accepts a 50% haircut can be thought to be a fairly extreme bail-out scenario.

Do monetary unions break up without civil wars?

The break-up of a monetary union is a very rare event. Moreover the break-up of a monetary union with a fiat currency system (ie, paper currency) is extremely unusual. Fixed exchange rate schemes break up all the time. Monetary unions that relied on specie payments did fragment – the Latin Monetary Union of the 19th century fragmented several times – but should be thought of as more of a fixed exchange rate adjustment. Countries went on and off the gold or silver or bimetal standards, and in doing so made or broke ties with other countries’ currencies.

If we consider fiat currency monetary union fragmentation, it is fair to say that the economic circumstances that create a climate for a break-up and the economic consequences that follow from a break-up are very severe indeed. It takes enormous stress for a government to get to the point where it considers abandoning the *lex monetae* of a country. The disruption that would follow such a move is also going to be extreme. The costs are high – whether it is a strong or a weak country leaving – in purely monetary terms. When the unemployment

consequences are factored in, it is virtually impossible to consider a break-up scenario without some serious social consequences.

With this degree of social dislocation, the historical parallels are unappealing. Past instances of monetary union break-ups have tended to produce one of two results. Either there was a more authoritarian government response to contain or repress the social disorder (a scenario that tended to require a change from democratic to authoritarian or military government), or alternatively, the social disorder worked with existing fault lines in society to divide the country, spilling over into civil war. These are not inevitable conclusions, but indicate that monetary union break-up is not something that can be treated as a casual issue of exchange rate policy.

Even with a paucity of case studies, what evidence we have does lend credence to the political cost argument. Clearly, not all parts of a fracturing monetary union necessarily collapse into chaos. The point is not that everyone suffers, but that some part of the former monetary union is highly likely to suffer.

The fracturing of the Czech and Slovak monetary union in 1993 led to an immediate sealing of the border, capital controls and limits on bank withdrawals. This was not so much secession as destruction and substitution (the Czechoslovak currency ceased to exist entirely). Although the Czech Republic that emerged from the crisis was considered to be a free country (using the Freedom House definition), with political rights improving relative to Czechoslovakia (also considered to be a free country), Slovakia saw a deterioration in the assessment of its political rights and civil liberties, and was designated “partially free” (again, using Freedom House criteria).

Similarly the break-up of the Soviet Union saw authoritarian regimes in the resulting states. Of course, this was not a change from the previous status quo, but that is not the point. The question is not how a liberal democracy develops, but whether a liberal democracy could withstand the social turmoil that surrounds a monetary union fracturing. We lack evidence to support the idea that it could.

Even the US monetary union break-up in 1932-33 was accompanied by something close to authoritarianism. Roosevelt’s inauguration was described by a contemporary journalist as being conducted in “a beleaguered capital in wartime”, with machine guns covering the Mall. State militia were called out to deal with the reactions of local populations, unhappy at what had happened to the monetary union (and specifically their access to their banks).

Older examples are less helpful, as they tend to be more akin to fixed exchange rate regimes under a gold standard or some other international monetary arrangement. Nevertheless, the Irish separation from the UK, or the convulsions of the Latin Monetary Union in Europe (particularly around the Franco-Prussian war in 1870 and its aftermath) saw monetary unions fragment with varying degrees of violence in some parts of the union.

Writing in 1997, the Harvard economist Martin Feldstein offered a view that seems to be somewhat chillingly precognitive. He said “Uniform monetary policy and inflexible exchange rates will create conflicts whenever cyclical conditions differ among the member countries... Although a sovereign

country... could in principle withdraw from the EMU, the potential trade sanctions and other pressures on such a country are likely to make membership in the EMU irreversible *unless there is widespread economic dislocation in Europe or, more generally, a collapse of the peaceful coexistence within Europe.*" (emphasis added).

When I want to call Europe, who do I call?

It is also worth reflecting that the break-up of the Euro and fragmentation of the EU would be a negative shock to Europe's international position. The EU is (depending on the metrics used) the largest or the second-largest economy in the world. The separate components of the EU – particularly those from the former Euro area – would be effectively neutered. Indeed, some could become candidates for a reprised Marshall Plan all over again.

What is the value of international influence? Some may consider a role on the international stage to be a burden rather than a benefit. At a time when the world faces global economic, environmental and political risks, however, there is much to be said for global influence. The globalisation of the last two decades, even if it stalls (perhaps particularly if it stalls) argues for as loud a voice on the global stage as is possible. Environmental issues require global solutions, and informed politicians need to speak with as much volume as is possible if they are to be heard above the cacophony of competing opinions. After a Euro breakup, Euro countries – even the more populous – would have barely a whisper on the world stage.

Remember why we are here

In 1994, no less a person than Helmut Schlesinger (former Bundesbank head) declared "the final goal...is a political one in which the economic union is an important vehicle to reach this target. Since 1952, the beginning of the creation of the European Community, the final goal was and is to reach any type of political unification in Europe, a federation of states, an association of states or even a stronger form of union. The political target has been guiding Germany since the beginning and will certainly continue to do so in the future."

The economic costs of breaking up the Euro are high, and extremely damaging. The political costs of breaking up the Euro, even in part, are too great to quantify in bald cash terms.

Investing in a break-up scenario

Our base case for the Euro is that the monetary union will hold together, with some kind of fiscal confederation (providing automatic stabilisers to economies, not transfers to governments). This is how the US monetary union was resurrected in the 1930s. It is how the UK monetary union, and indeed the German monetary union, have held together.

But what if the disaster scenario happens? How can investors invest if they believe in a break-up, however low the probability? The simple answer is that they cannot. Investing for a break-up scenario has not guaranteed winners within the Euro area. The growth consequences are awful in any break-up scenario. The risk of civil disorder questions the rule of law, and as such basic issues such as property rights. Even those countries that avoid internal strife and divisions will

likely have to use administrative controls to avoid extreme positions in their markets.

The only way to hedge against a Euro break-up scenario is to own no Euro assets at all.

Selected UBS research on the Euro

Deo, "Yes, Greece could devalue (while staying in the euro)" 20 July 2011

Deo, Lueck, Cominetta, Miller "Euro crisis: Crunch-time nearing?" 8 July 2011

Deo, Lueck, Cominetta, Miller "Where is Europe heading?" 10 December 2010

Donovan "Could Germany leave the Euro?" 30 November 2010

Donovan "A Euro Sovereign default – what would it mean?" 9 November 2010

Deo, Lueck, Cominetta, Miller "Fiscal integration" 28 May 2010

Donovan, Hatheway, Deo "How to break up a monetary union" 24 February 2010

Deo "Can Greece default?" 1 December 2009

Chapman, Deo, Donovan, "European Sovereign Default and Euro Break-Up? – Conference Call Transcript" 28 January 2009

Donovan, Deo, Constable "Breaking up is hard to do: the Euro and the credit crisis" 13 November 2008

Deo "EMU divergence, not break-up" 4 April 2008

Hatheway, Cates, Donovan "'No': What does it mean?" 2 June 2005

Donovan "Diverging European Bonds: Sovereign credit ratings under EMU" 16 December 1998

Donovan "When inflation is (relatively) good for bonds" 22 July 1998

Magnus, Donovan "European bond markets under EMU" 8 August 1997

Magnus, Donovan "Labour markets and EMU" July/August 1996

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