



Leaving the euro: *A practical guide*

“If member states leave the Economic and Monetary Union, what is the best way for the economic process to be managed to provide the soundest foundation for the future growth and prosperity of the current membership?”

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1 INTRODUCTION

This report is a practical document designed to answer the question:

If member states leave the Economic and Monetary Union, what is the best way for the economic process to be managed to provide the soundest foundation for the future growth and prosperity of the current membership?

Accordingly, each of the main sections concludes with recommended actions, which are then brought together at the end of the paper in a step-by-step plan.

We interpret ‘leaving Economic and Monetary Union’ to mean withdrawal from the most important element of the third stage of EMU, that is the euro — although we also consider the consequences for relations with remaining members of the euro-zone and other members of the EU.

How the process can best be managed depends critically upon the nature of the economic problems faced by the current members and how these problems could be tackled by breaking up the euro. Accordingly, the report begins with a section which sets the scene by briefly laying out these factors. This section includes a brief discussion of some key theoretical issues, although (as elsewhere in the paper) the most detailed material is left to appendices.¹

This introductory section sets out a framework for thinking about exit from the euro as two distinct events: the adoption of a new currency, requiring the redenomination of domestic wages, prices and other monetary values; and a change in the external value of that currency on the foreign exchange markets. In the case of a weak country leaving, that change would almost certainly be a large devaluation.

¹ All the essential arguments in the piece are expressed within the main body of the text and can be appreciated without reference to the appendices, which are intended for those who wish to examine the arguments and the supporting evidence backing them up in more detail.

This section also discusses the different ways that the euro might be broken up, including the departure of one or more strong countries, or a division of the current euro into a ‘hard’ and a ‘soft’ euro. Our view is that the most likely scenario is that at least one weak country will leave the euro. But even if it were a strong country that left first, there would be some countries, i.e. probably the rest, that would be left with the problems of weakness, such as a lower currency, higher inflation and a weak banking system.

Moreover, for any strong countries which left, or which remained after weak countries left, the substantive issues would be the same as those that would face weak countries that left, only with signs reversed. Accordingly, to avoid tedious duplication which would result from examining every conceivable type of break-up, our approach is to conduct the analysis in regard to the issues thrown up by a weak country leaving. But we then examine the position that this puts strong countries in and their likely response in section 6.1. In section 2.2 we examine how far these problems would be significantly different if it were a strong country, rather than a weak one, that left the union.

To keep the drafting simple, we assume that Greece is the weak country that is first to leave, and that its new currency is called the drachma. Similarly, we use ‘peripheral countries’ to describe those seemingly vulnerable members which are sometimes referred to by others as the PIIGS (Portugal, Italy, Ireland, Greece and Spain). But when we refer to ‘Greece’ this should be taken as shorthand for any, or all, of these peripheral countries. Similarly, when we refer to the ‘drachma’, this should be taken to refer to the new national currency of any country exiting the euro, or all of them.

The subsequent main sections of the document are then divided into four, each with specific policy recommendations.

The first considers some of the political and legal practicalities of the decision-making and the implementation process itself: the pros and cons of secrecy versus openness; the legal implications of a decision to exit; and how to best manage relations with countries that continue to use the euro.

The second is focused on the practical issues raised by the redenomination, including what conversion rate to use and how best to manage the introduction of new notes and coins.

The third main section is about devaluation and its consequences, including: how far the new currency might fall; how this process should be managed; the implications for inflation; the pros and cons of capital controls; and the likelihood of defaults on sovereign debt. This section also discusses the impact on the banking system, and the consequences for the personal sector's finances.

The fourth section assesses the implications for those countries remaining within the monetary union and what actions they could and should take.

The paper concludes with a summary of the practical steps that should be taken to manage the process of leaving the Economic and Monetary Union and provides an indicative timetable.

2 THE LOGIC AND LIKELY FORM OF THE EURO BREAK-UP

This section, which provides the analytical framework, begins with a summary of the economic problems faced by the current members and how these problems could be tackled by breaking up the euro. It includes a framework for thinking about exit from the euro as two distinct monetary events: redenomination and devaluation. It also briefly considers different ways in which the current membership of the euro might be restructured, before identifying the key practical issues that the rest of the report will discuss in depth.

2.1 **Why the euro-zone needs radical economic adjustment, and the case for break-up**

The predicament of the euro-zone is both financial and economic. The financial element is to do with debt. Several countries have public debt burdens which are unsustainable. In some cases, private debt is also excessive. Meanwhile, excessive debt in the public and/or private sectors threatens the stability of the banking system.

The economic problem is that several members have costs and prices which are high relative to other members of the union, and indeed the outside world, thereby causing a loss of competitiveness, resulting in large current account deficits. Often it is the same countries that suffer from both of these problems.

As a result of poor competitiveness and/or the burden of excessive debt, several members of the euro-zone suffer from a chronic shortage of aggregate demand, which results in high levels of unemployment. This worsens the debt position of both the private and public sectors, thereby weakening the position of the banks. Meanwhile, other countries enjoy current account surpluses, often accompanied by more favourable debt positions in both the public and private sectors.

So, clearly, the financial and economic aspects of the crisis are closely inter-twined. Full adjustment for the euro-zone and the establishment of stability for both the member countries and the rest of the world requires that both these problems be addressed.

The attempt to regain competitiveness and work down the debt burden through austerity alone is bound to fail. Cutting public deficits will reduce demand both at home and in other euro-zone members. As several, if not all, members of the euro-zone are attempting to improve their position through cutbacks, they will find that they are pedalling ever harder to remain in more or less the same place. Even if the consequent downward pressure on wages and prices results in an improvement in competitiveness, for most countries this will take many years, if not decades, to work.

Moreover, price deflation would worsen the financial problem because it would increase the real value of debt, thereby intensifying both the downward pressure on aggregate demand and the fragility of the banking system. (This is the phenomenon of debt deflation, as explained by Irving Fisher.) So the objective of improving competitiveness is at odds with the objective of reducing the debt burden.

For countries afflicted by these two problems, leaving the euro and letting their new currency fall offers a potential way out. If successful, it would help support an economic recovery through increased net exports, while not increasing the burden of debt as a share of GDP through domestic deflation. It might also allow some further expansion of domestic demand, which is probably necessary for full employment.

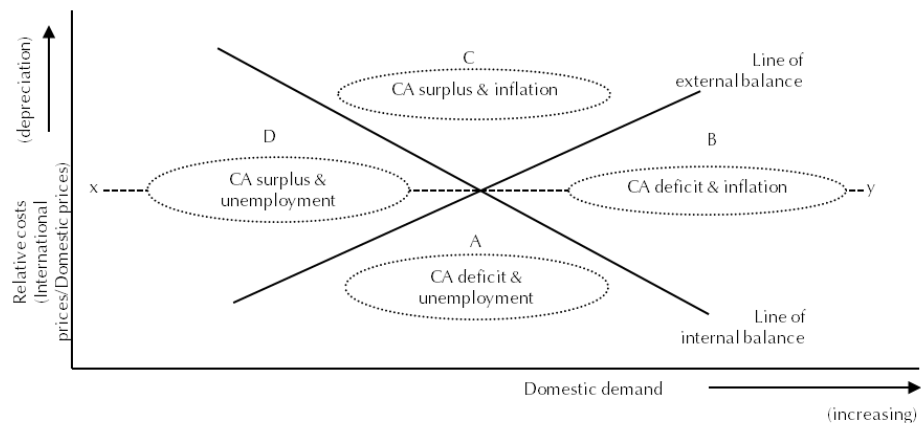
Nevertheless, on its own, devaluation would not be adequate to solve the problem of excessive indebtedness. Indeed, the depreciation that would follow from euro exit would initially worsen the debt problem, because debt is denominated in euros. Accordingly, an exiting government would have to default on its debt, and perhaps substantially. However, it is by no means clear that the scale of default would ultimately be any greater than what would follow if the country stayed within the single currency. It is the timing that would be different. Most importantly, there would be considerable offsetting economic gains.

It would be in the interests of the 'stronger' countries that remain in the euro to support the exit of their weaker partners. Although there would be some denting of the stronger countries' competitiveness by the devaluation of the exiting country's new currency, they would ultimately benefit from the departing economy being stronger, thereby both improving the market for their exports and improving the quality of any continuing financial claims that they may have on this country. They might also benefit by being able to develop a tighter monetary union and closer fiscal harmony with the remaining members.

The Swan diagram

Before this, however, comes the issue of whether a country needs to lower its real exchange rate at all, or whether adjustment can be made simply by managing domestic demand, that is to say, in this case, simply by administering doses of fiscal austerity. The essential analytical tool for this assessment comes from a rather old article in international economics, and one recently rather neglected, by the Australian economist, Trevor Swan², which gave rise to what is now known as the Swan Diagram. (See Figure 1.) It shows combinations of relative costs and domestic demand which can give ‘external balance’ – some sort of acceptable position of a country’s balance of payments – think of it, if you like, as a zero balance on current account. It then juxtaposes this with the combinations of these two variables which give ‘internal balance’ – i.e. full employment without inflation, or the natural rate of unemployment (or call it what you will).

Figure 1: The Swan Diagram



Source: Capital Economics

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Swan (1955)

The diagram does suffer from some serious theoretical defects. There is an artificial division between ‘unemployment’ and ‘inflation’, which may be interpreted as some sort of desired point on a Phillips Curve, if such a thing existed. But if internal balance is interpreted as the NAIUR then in the ‘unemployment’ segments the inflation rate will be decelerating and eventually turning negative, and in the ‘inflation’ segments, it will be accelerating without limit. Thus, in the ‘unemployment’ segments, at some point the real exchange rate will be falling, through internal devaluation; and in the inflation segments, it will be rising.

Despite these drawbacks, the diagram is an extremely useful heuristic device.

The chart describes four types of economic ‘unhappiness’: current account deficit with unemployment (Zone A in our diagram); current account deficit with inflation (Zone B); current account surplus with inflation (Zone C); current account surplus with unemployment (Zone D).

What the diagram makes clear is that although there are some states that an economy can be in where a change in only the level of domestic demand is what is required (specifically countries on the horizontal line X-Y depicted in the diagram), the overriding bulk of cases will require changes in both domestic demand and the real exchange rate to achieve the desired combination of internal and external balance.

All of the troubled countries of the euro-zone are in section A of the diagram. This is not surprising. During their years of euro membership, domestic costs and prices have risen sharply, leaving them uncompetitive. They unambiguously need a depreciation of their real exchange rate to achieve both internal and external balance. Whether they also need higher or lower domestic demand is not clear *a priori*, although in the case of Greece and Spain, their economies are so depressed (i.e. they are well to the left within segment A) that it is likely that they will need an increase in domestic demand. Of course, the scope to deliver such a boost is limited both inside and outside the euro. But outside the euro there might be some scope through the operation of quantitative easing.

Germany and several of the smaller core countries are in the upper part of Zone D or in the left hand portion of Zone C. Accordingly, they unambiguously need a rise in their real exchange rate (i.e. a downward movement in the diagram) and an increase in domestic demand. Interestingly, France seems to be in Zone A, along with the troubled peripheral countries.

Nominal and real flexibility

What the Swan Diagram does not make clear is that it is possible to lower the real exchange rate through domestic deflation. Indeed, if nominal prices and wages were perfectly flexible downwards, this would be just as effective as devaluation. Equally, if real wages and prices were perfectly

inflexible downwards, devaluation would do no good: a lower nominal exchange rate would be exactly offset by higher domestic wages and prices, leaving the real exchange rate unchanged. So what makes the case for devaluation – or in this case, leaving the euro – is the combination of nominal downward wage inflexibility and real wage flexibility.

The advantages of devaluation turn on the need – and the ability – to reduce the real exchange rate by lowering the nominal rate. If the troubled peripheral economies of the euro-zone were able successfully to deploy this adjustment mechanism then they would not only improve their own GDP outlook but would also help to allay concerns about the long-term sustainability of their debt situation and, in the process, perhaps bolster the long-term stability of the ‘core’ countries as well.

But devaluation is not without its costs. It carries clear downsides and dangers. Moreover, not all devaluations have worked. History is littered with examples of devaluations that have failed or even brought chaos — such as those in Argentina (1955, 1959, 1962 and 1970), Brazil (1967), Israel (1971) and numerous others, as well as those that have brought a form of solution, e.g. the UK in 1931 and again in 1992.

Equally, though, it is otiose to compare the difficulties that would face a country that leaves the euro-zone with an assumed sylvan path if she stays in. For all the peripheral countries, continued euro membership seems bound to bring continued economic hardship, accompanied by a significant risk, or in some cases the inevitability, of default. So it is a choice between evils.

What makes the difference between success and failure, and what steps could the government of a peripheral euro-zone member government take to ensure success rather than failure? This paper will try to answer these questions.

The key relativities

The whole point of devaluation is to alter relativities. If all prices, wages and other money values went up *pari passu* then nothing would be

achieved. In practice, this would simply amount to a pure redenomination – swapping *pengos* for *pongos*.

There are two relativities that might need to be shifted: the relation between overseas and domestic costs and prices; and the value of debt relative to current production. On the latter, imagine an economy where there is a large debt (liabilities of the domestic private and/or public sectors, denominated in domestic currency). Under certain conditions, it will be possible to reduce the real value of this debt by engineering or tolerating a high rate of inflation.

This may be set in train by a lower exchange rate or, at the least, a lower exchange rate will be an integral part of the inflationary process. In this case the objective is to reduce the ratio of debt (and debt interest) to the level of wages and salaries, or profits, or taxes, or all of these, whichever is appropriate, depending upon which sector owes the debt. In this case, if the exchange rate falls, it is most helpful if increased inflationary pressure spreads throughout the economy, thereby raising nominal values by the maximum possible extent.

In the former case, by contrast, securing the objective of increased competitiveness depends upon the full inflationary impact of devaluation **not** being passed through the system. If it is, there will be no improvement in competitiveness and the devaluation will fail.

In the case of the euro-zone, vulnerable countries face both a lack of competitiveness and a huge overhang of debt. But euro exit, on its own, cannot address both. A successful devaluation which left a lasting impact on competitiveness would depend upon any inflationary upsurge being kept in check. So even if inflation were a viable and successful way out of the debt problems (which is itself debatable) the need to improve competitiveness rules it out. This means that excessive debt will need to be addressed by other means, probably involving some measure of default.

2.2 A central scenario for a break-up

Although a break-up of the euro is required to help unwind the structural imbalances within the currency bloc, the form, extent and timing of that fracture is less certain.

In Appendix A2, we tackle the theoretical question of the optimal reconfiguration of the euro-zone in some detail. There is a large number of possible outcomes. Analytically, the most straightforward form of break-up is the departure of a single country. At the other extreme is a complete break-up in which all current member states return to national currencies. In the middle, a number of countries might exit, leaving behind a ‘core’ euro, or the euro-zone might split into two separate currency unions – perhaps a Northern bloc and a Southern bloc. Below we summarise our thoughts and conclusions on the different sorts of break-up and our analytical approach to how the varying possibilities are best dealt with.

A Northern core is optimal but a Southern bloc isn’t

Our analysis concludes that the economically optimal reconfiguration of the euro-zone would be the retention of a core Northern euro-zone incorporating Germany, Austria, the Netherlands, Finland and Belgium. These countries have converged and they have compatible economic structures. They come close to being an ‘optimal currency area’.

France’s economic credentials for membership of this group are less clear but, in reality, it appears likely that political considerations would dictate that it was also a member.

However, we do not subscribe to the idea that the Southern and peripheral economies should (or will) remain together in a Southern euro. Their economic diversity, and mostly limited levels of trade with each other, suggest that the benefits of being able to set their own domestic policy and allow their exchange rates to float would outweigh those of continued exchange rate stability. From a more practical perspective, it is far from clear that those countries would actually want to continue to be closely

associated with each other. (The recent policy approaches of most of those countries have, after all, been based on trying to distinguish themselves as far as possible from Greece!)

Analytical differences if the core economies leave?

The euro could be reduced to something like the Northern core, described above, through a process of the Southern countries leaving, either individually or *en bloc*. But it would be possible for the euro-zone to break up via the departure of the strong core economies to establish their own union. Moreover, it might reduce transition costs. It would presumably allow the remaining euro to fall, strengthening the economies of the remaining member states. It would also mean that the stronger Northern economies, rather than the weaker Southern ones, would bear the costs of leaving the currency union, which we will go on to elaborate in succeeding sections: printing a new currency and redenominating contracts and debt securities. More importantly, in this scenario, there would be less need for debtors in the weaker economies to default as they could continue to service euro liabilities in euros as their home currency.

Nevertheless, maintaining the legal continuity of the euro in these circumstances would not be straightforward, especially if large (core) economies such as Germany and France were to leave. This would open the door for legal challenges that the euro has become the rump currency of a smaller (peripheral) bloc and that this is a fundamental change in the terms of the contract which represents a breach and/or default. At the very least, the existing legal framework and institutions supporting the euro as presently constituted (including the ECB) would have to continue to stand behind the currency under its narrower membership. Any Treaty amendment legitimising the exit of one or more stronger countries would also have to confirm the continuity of the euro as the currency of the remaining members.

Moreover, the problem of currency mismatch would simply be transferred to the stronger countries leaving the euro. Debtors in these countries with obligations in euros would be better off, but creditors would be worse off. There would also still be problems of capital flight from weaker economies

into stronger ones, in the expectation that the currency of the weaker economies would fall.

However, these flows might be reduced if the weaker economies kept the euro, because there would be less disruption to their financial systems and there would at least be some continuity in their institutional framework. A strong country leaving the euro is also likely to be in a better bargaining position with respect to other EU member states over any emergency measures it may need to take.

In terms of transition, there might be a case for a two-step process in which a group of countries leaves the union as a bloc and then individual countries peel off from the remaining rump one by one to re-establish national currencies. They might even peel off from the original departing bloc. There are all sorts of possibilities concerning the transition process but we do not think that they are analytically sufficiently different to be worth separate consideration.

Should exit be temporary or permanent?

An additional question regarding the form of a break-up is whether it is possible for a country to leave the euro-zone on a temporary basis, in order to improve its competitiveness, before then returning to the currency union. We discuss the potential advantages and feasibility of this option in Appendix A3. Suffice it to say here that we do not view that as a realistic option nor is the idea of an overnight technical deflation which did not need painful adjustment over a long period. The notion of some clever, technical trick that offers an escape from the nasty choice of external devaluation or internal deflation is a chimera.

Our approach

It is not possible to work through every permutation of euro break up. In what follows, therefore, our analytical approach is to adopt a central scenario built around one peripheral country leaving. However, we highlight the implications if the break-up scenario was different.

2.3 Euro exit: Devaluation with redenomination

Leaving the euro (or, indeed, a complete break-up of the euro) would be a combination of two distinct monetary events:

- (i) a currency conversion and redenomination of domestic wages, prices and all other domestic monetary values into a new currency; and
- (ii) a change in the exchange value of that currency. In the case of a weak country, that change would be a depreciation.

It has to be both of these. There can't be devaluation alone because the euro can't be devalued against itself, and a mere redenomination into a new currency would achieve nothing. It would be like measuring the distance from Paris to Berlin in miles rather than kilometres. The numbers would be different but there would be no change in the spatial relationship between the two places.

There are some historical examples where the two events have occurred together, as a result of the break-up of previous monetary unions – *viz* the collapse of the Soviet Union in 1991-3, the disintegration of the Austro-Hungarian empire after the end of the First World War and the break-up of Czechoslovakia in 1993. There are also a couple of episodes which, although they can provide useful pointers, are not exactly analogous because the countries embarking on a new monetary regime had never given up their own currency in the first place. This was the case with the link of the Irish punt to sterling, which was broken in 1979, and the end of the link between the Argentine peso and the dollar in 2002.

We draw on all these instances, where appropriate.³ However, much of this experience is of limited value because it occurred a long time ago and/or it

³ See Appendix A1.

happened in much less developed and sophisticated financial systems than those which exist today. Accordingly, it would be useful to be able to draw on other evidence.

In this regard, seeing a euro exit as a combination of redenomination and devaluation is extremely helpful analytically. It enables us to draw on the wealth of historical experience of these two separate phenomena.

There are many examples of countries trying to make their monetary systems tidier by dropping a few noughts off the end of the currency without changing any matters of real substance. This happened in France in 1960, in Israel in 1986 and in Turkey in 2005. Equally, the adoption of the euro at pre-agreed exchange rates and the re-expression of prices and wages in the new currency in 1999, followed by the distribution and use of the new currency in 2002, are also relevant.

Meanwhile, there are umpteen examples of devaluations and depreciations of currencies which have not involved redenomination or the introduction of a completely new currency, including the exit from the ERM in 1992. We draw on this evidence extensively.

Legal problems

The combination of these two phenomena does give rise to a set of problems which do not exist in either pure redenomination or devaluation: legal problems. These do not arise in the case of a pure redenomination or currency conversion because no one loses from this process. It is a simple matter to declare that 100 *pengos* equal one *pongo*. Similarly, they don't arise in the case of straightforward devaluation because although there are people who do lose from the change (as well as some who gain) that is their risk. They made a contract in a certain currency, *pengos*, and if there are now more *pengos* to the dollar then there is nothing more to be said.

That being the case, would there be anything to be gained from separating the two operations in time, i.e. redenominating the currency first and then depreciating the exchange rate later? This would be impossible. For a euro-zone member to introduce a new national money would be in effect to leave

the euro. Moreover, once a new currency was in existence the markets would have it in their power to depreciate it, and they surely would do so.

2.4 The practical issues

Having now rehearsed the logic of, and the theory behind, the break-up of the euro, the remainder of this document is a practical guide to managing the challenges faced by one or more weak countries wanting to leave the euro and to adopt a new currency whose external value is intended to fall sharply.

In the following sections, we consider how the Greek authorities, in exiting the euro, need to:

- Manage the decision-making and implementation process: how to plan the exit in secret; the legal constraints and implications; and how to manage relations with other countries, including those keeping the euro.
- Manage the process of, and implications of, redenomination: the setting of a conversion rate; how to handle the introduction of new notes and coins; and preventing capital flight.
- Manage the impact of devaluation: assessing how far the exchange rate might fall; how to manage the flows of capital; how to minimise the risk that inflation takes off; how to manage a government default; and how to manage the impact on the personal sector's finances.

In addition, we consider how the ECB and the countries that remain in the euro after Greece's departure should respond.

3 **MANAGING THE DECISION**

The main focus of this report is to identify and find measures to overcome the practical economic and financial issues facing a country leaving the euro. However, we must first recognise the need to work within the constraints of both domestic and international law, as well as the real world requirements of national, European and global politics.

In this section, we address three key considerations. First, should decisions about and plans for a euro-zone exit be made in secret or openly? Second, what are the legal implications of and constraints on a country deciding to leave the euro-zone. Third, how can a country leaving the euro-zone maintain constructive relations with its former single currency partners?

3.1 Secrecy versus openness

In theory, keeping a country's planned exit secret for as long as possible would help that country to minimise – or at least *delay* – the disruptive effects likely to be caused by the disclosure of its plans to leave.

Such effects might include: large capital outflows from the country as international investors and domestic residents withdrew their funds; associated falls in asset prices and increases in bond yields; runs (i.e. large and rapid deposit withdrawals) on banks in the country, perhaps causing a banking crisis; and negative effects on consumer and business confidence.

Together, these effects could make it more difficult for a country to leave the currency union in an organised and orderly manner to a planned timetable. In addition, one key part of the transition to a new currency, namely the printing of new notes and the minting of new coins, takes organisation and time. If it is known that such preparations are going ahead, this will reveal that a redenomination and devaluation are in store and precipitate the dangerous consequences outlined above.

The disadvantages of secrecy

There are also some disadvantages associated with keeping exit plans secret. It would prevent a broader discussion and debate on the best way for a country to leave. This would probably result in a sub-optimal plan for exit.

It would also preclude or limit public involvement in the decision, potentially damaging the democratic process and leading to social and political unrest. There could, for example, be no referendum on the question. This might also preclude the possibility of a cross-party political consensus, hence weakening the new policy arrangements and reducing confidence among both the public and international markets that the new monetary framework would succeed.

It would also prevent or hinder firms and households from making plans and taking action to protect themselves against the negative consequences of a departure. But this is a double-edged sword. Knowledge of, and anticipation of, the change could precipitate actions which could obviously be bad for the overall process (e.g. if they involved mass bank deposit withdrawals).

Finally, it might lead to increased speculation that other countries are also secretly making plans to exit the euro, hence increasing market pressure on those countries and making a bigger, disorderly form of break-up more likely.

Historical evidence on planning and secrecy

There are several historical examples of changes to economic policy regimes and currency systems which have involved varying degrees of planning and secrecy. One example with little planning is sterling's exit from the European Exchange Rate Mechanism in September 1992, which occurred literally overnight, followed, in subsequent weeks, by the evolution of a whole new policy regime. However, the issue of planning was less relevant since the pound's exit was a result of market pressures rather than pre-determined economic policy. Moreover, the process did not need much planning since the UK had maintained a separate physical currency.

More substantial forms of currency regime break-ups have naturally involved more planning; some of it conducted in secret. One example is the break-up of the Czech-Slovak monetary union which followed the political fragmentation of Czechoslovakia in 1992. The Czech government and central bank decided on 19th January 1993 but the plans were kept secret until a public announcement was made on 2nd February, which was just six days before the separation date.

A more impressive confidential plan for a new currency was the example of South Sudan, which managed secretly to print a complete supply of new national currency in the six months before it declared independence on 8th July 2011.

The creation of 12 new currencies, in 1992, following the break-up of the Soviet Union was planned over a long period and conducted largely in public. However, it was not so successful and was marred by member states acting unilaterally, with adverse consequences.

Finally, the establishment of the euro itself involved extensive planning over a prolonged period. While much of the broad planning was done openly and in public, a number of decisions were made during the process that had the potential to cause major market disruption and therefore had to be kept confidential until the public announcement — including which countries had passed the entry criteria and at what levels exchange rates would be converted. The fixing of exchange rates was finalised and announced just hours before the actual introduction of the euro on 1st January 1999, although they were determined by prevailing market rates against the ECU.

Will it be possible to keep a planned euro exit a secret?

There are some historical examples of plans for currency regime change being kept secret. But it is likely to be much more difficult to keep an impending euro exit a secret than the independence of South Sudan.

The early stages of planning at least could probably be undertaken in secret. Studies and plans could be carried out by a small group of government officials or (although this is more risky) commissioned from other organisations on a confidential basis.

This would be akin to the preparation of government budgets and other policy measures such as interest rate changes which are regularly known by a number of people beforehand (in the case of budgets, for example, advisors, authors, printers) and yet are still (mainly) kept confidential before release and publication.

However, there would be a clear danger that such plans would eventually become public or be ‘leaked’. The key would be to keep the number of people who knew as small as possible and the delay between decision and implementation fairly short. Actual preparations, such as the printing of

new currency, would be difficult to keep secret. There have, after all, already been a number of rumours and stories in the media — albeit unsubstantiated — about Greece and other euro-zone countries preparing to print new currencies or even starting to do so.

What are the consequences?

The implication of this is that measures such as capital controls and bank closures would probably need to be introduced at an early stage of the implementation process in order to limit the disruption associated with the disclosure that a country was planning to leave. Once these measures were in place, there would be the opportunity for a conversation with political leaders, officials, opposition leaders and key opinion formers, and time for both an explanation of why this was happening and how it was going to work. It would not be possible, however, to discuss the change, still less to seek endorsement of it.

Recommendations

- The early stages of planning for a euro exit should be conducted in secret, although it will be difficult to maintain the secrecy for long.
- Capital controls and similar measures will need to be implemented fairly early in the preparation stage in order to limit the disruption likely to be caused by the disclosure of the exit plans.
- Once such measures are in place, exit plans should be implemented swiftly.

3.2 Legal implications

The decision to withdraw from the euro would essentially be an economic and political one. Nonetheless, the technical legal position could still be important, because legal rights help to determine bargaining power and the starting point for negotiations.

Any country leaving the euro would face a number of potentially serious legal problems:

- (i) whether euro exit could ever be consistent with existing Treaty obligations or would inevitably require the country to leave the EU as well;
- (ii) what would be the legal position in respect of any additional measures that might be taken alongside euro exit, such as the introduction of capital controls;
- (iii) how other member states might respond, including the effectiveness of sanctions available to them and their relative bargaining power; and
- (iv) how the adoption of a new national currency would affect existing contracts denominated in euros, especially where these contracts are governed by the laws of other countries.

In addressing these problems, we have taken account of opinions published by leading legal practices but the conclusions that follow are our own.⁴

Leave the euro and leave the EU?

Until recently the mainstream view had been that the legal obstacles facing a government wanting to exit the euro-zone are so great that in practice the break-up of the single currency would be ‘inconceivable’. In particular, it

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See Appendix A4 for a list of the publications consulted.

has been widely taken for granted that it would be impossible legally for a country that has abandoned the single currency without the agreement of other members to remain within the EU.

Indeed, the euro is the common international currency of the whole EU and is established and governed by EU treaties. In principle all member states of the EU are obliged to adopt the euro once they have met certain economic and technical criteria. The UK and Denmark have had to negotiate opt-outs from the single currency, while Sweden has been excluded only by virtue of failing to meet one of the convergence criteria (namely membership of ERM II for two years).

The relevant treaties make no provision for a country to leave. The original language setting up the euro implies a permanent arrangement – notably the references to the ‘irrevocable’ fixing of conversion rates and the ‘irreversibility’ of the steps towards monetary union. There is also the obligation on all EU member states to join the euro once they have met the entry criteria, unless they have agreed an ‘opt out’.

These are substantial points and other member states may well feel they have solid legal grounds to challenge any country that chose to leave the euro. However, the view that there are no circumstances under which a government can exit the euro-zone without also leaving the EU is probably not as robust as widely assumed.

First, it could be argued that the lack of any formal provision to leave the euro in the original treaties was not necessarily intended to be the last word; in particular, the signatories might simply have wanted to avoid creating additional uncertainty about the future of the euro-zone from the outset.

Second, there is a general principle of international law that governments have a sovereign right to withdraw from treaty obligations if a fundamental change of circumstances challenges the original basis on which the treaty was signed or which otherwise makes continued membership unsustainable. A weak country such as Greece could argue that the economic costs imposed by continued membership have become intolerable. (Equally, a

strong country such as Germany could argue that others have not been playing by the fiscal rules agreed when the treaties were signed.)

Third, a number of developments over the last few years have challenged the assumption that membership of the euro-zone has to be permanent. The latest came during the crisis over the proposed Greek referendum on the latest bail-out package in November 2011, when European politicians – including the leaders of both Germany and France – openly discussed the possibility that Greece would have to leave the euro-zone or could even be expelled. The long-term viability of the euro was also widely questioned at the time of the crisis over the French and Dutch referendums on the EU constitution in 2005.

Fourth, the Treaty of Lisbon included a clause (Article 50) acknowledging the right of countries to withdraw from the EU with the approval of a qualified majority of other member states, or in any event within two years of making the request to leave. If this right exists in respect of the far wider issue of EU membership, it is harder to argue that it does not also exist in respect of the narrower question of participation in the euro.

There does not appear, then, to be any insurmountable legal barrier to a country leaving the euro and remaining within the EU. Nonetheless, both exit from the euro and continuous membership of the EU thereafter would certainly be easier with the cooperation of other member states.

In particular, the status of a country leaving the euro but wishing to remain within the EU could be clarified by a Treaty amendment which put that country in a similar legal position to that of the UK and Denmark, which have opted out of the single currency but are still full members of the EU in (most) other respects. This would probably require the agreement of all member states, and might be seen as making it easier for other countries who might decide to leave the euro in future too. However, once one country has already left, worries about establishing a precedent or a procedure for leaving will probably be trumped by the desire for damage limitation.

Legality of emergency measures

Even if euro exit is permissible, some of the emergency measures that a country might need to take alongside leaving the euro could still be in clear breach of EU laws. For example, the Commission started legal proceedings in January against Hungary over reforms to its central bank law and judiciary that appear to be inconsistent with EU obligations. This could result in the suspension of payments to Hungary from EU cohesion funds (which could also be a credible threat to those weaker economies that might want to leave the euro as these countries are also likely to be large net recipients of EU funds). In principle, the EU can impose unlimited fines (under Article 260 of the consolidated Treaty) on any member state that breaches EU law and, although while there is no formal mechanism for expelling a country from the EU (unlike the procedure for voluntary withdrawal under Article 50), membership could be temporarily suspended.

Other members could also simply fail to cooperate with a country which leaves the euro and introduces a new currency. Moreover, uncertainty and continual wrangling over the legal positions of contracts and the effective real value of various sorts of wealth and debt could seriously inhibit the effective recovery of an exiting country's economy.

One immediate stumbling block is that any country that seeks to impose capital controls would be in clear breach of its existing treaty obligations. After all, the free flow of people, goods and capital is fundamental to the EU. These capital controls could therefore be overturned in the European courts and even in the national courts of the exiting country. (EU law normally takes precedence over national law.)

There is a provision (Article 59) which might allow the temporary imposition of capital controls for a period not exceeding six months, if approved by the Commission and the ECB and agreed by a qualified majority of states.

In practice, it may be relatively easy to gain the agreement of a qualified majority. The ECB and the remaining member states would probably have substantial exposures to exiting countries both in the form of holdings of

government debt and loans made to the banking system (which would only be partially offset by the capital contributions that countries made to the ECB when they originally joined the monetary union). As a result, even if the exiting country did default on some or all of its government debt, other member states would have a strong incentive to prevent a complete collapse of its banking system. Correspondingly, other member states may be willing to agree to some limited and temporary capital controls to protect their own interests.

However, it may be impossible to build the required amount of support in advance without forewarning everyone that capital controls are coming. Realistically, a country imposing capital controls would therefore have to hope either that the rest of the EU moved quickly to legitimise these controls after they have been introduced, or that the inevitable legal challenges take so long that the controls are able to achieve their aim of preventing destabilising outflows at the time of EMU exit before they are overturned.

Legal status of the new currency

An even bigger issue is the legal status of any new currency and the impact this would have on contracts which are originally specified in euros.

The most important considerations are:

- (i) whether the contract is governed by the law and/or falls under the jurisdiction of the exiting country or that of another;
- (ii) whether the euro continues to exist in some form;
- (iii) whether any reference to the “euro” in the original contract is interpreted as a reference to the common international currency of the EU or to the national currency of the country at the time; and
- (iv) whether payment is due in the exiting country or elsewhere.

The redenomination of contracts which are governed by local law should be relatively straightforward. There is a universally accepted principle – the

‘*Lex Monetae*’ – that governments have the sovereign right to determine their own national currency and to set its official conversion rate against other currencies. So if Greece says that its national currency is now the “new drachma” and that all contracts in euros which are subject to Greek law should be converted at a rate of X, this would almost certainly be recognised and binding in all the major financial centres of the world. Indeed, there is a large body of international case law to the effect that a country can unilaterally change the terms of any debt obligation, even if this imposes substantial costs on one side or the other, provided this obligation is governed by its own local legislation.

However, this is unlikely to apply in cases where the debt obligation is governed by the law of a foreign jurisdiction, except in the unlikely event that the original contract is specified in terms of the ‘lawful national currency’ rather than explicitly in ‘euros’. The general principle in English law and elsewhere is that the courts will seek to uphold the original terms of a contract regarding both the currency of payment and the amount. There would be a strong presumption that any references to the ‘euro’ refer to the common international currency of the EU, especially if payment is due to be made in another country to a foreign counterparty.

Indeed, this presumption will often be made explicit. Taking the International Swaps and Derivative Association’s *Master Agreement* as an example, the euro is defined as ‘the lawful currency of the member states of the European Union that adopt the single currency in accordance with the EC Treaty’. Correspondingly, even if Greece abandoned the single currency and adopted the new drachma, obligations governed by this or the many similar agreements would still be enforceable in euros.

Moreover, even if foreign courts determined that payments could be made in the new currency, this is still likely to be for the equivalent value in euros at the prevailing market exchange rates. In the scenario where a weak country or countries decides to adopt an entirely new currency which then falls in value against the euro, some counterparties may then either have to default on their euro obligations or attempt to renegotiate them on less unfavourable terms.

There is no easy way out of this, as any solution that favours debtors will inevitably penalise creditors, and vice versa. In principle, the winners and losers from the resulting currency movements should cancel each other out, but there may still be net costs if the losses fall disproportionately on weaker parties. The associated uncertainty would increase legal bills, take up management time, and disrupt international trade and finance.

These costs are impossible to quantify with any precision. Foreign companies and investors may be unwilling to do any business with an exiting country until the uncertainties over existing contracts are resolved. The more open the economy and financial system, the greater the damage is likely to be. If we assume the costs caused by the additional legal uncertainties are equivalent to just 10% of annual external trade in goods and services, a typical euro-zone country might face an additional hit of 4% of GDP. But the disruption in the immediate aftermath of an unanticipated exit from the euro could be much greater.

At best, these costs could be minimised by a universal agreement on the legal status of the new currency and on its conversion rate. This is another area where cooperation among all EU member states could have a role to play. The EU is the sovereign body for the euro, including for the purposes of the '*Lex Monetae*'. The EU legislation establishing the euro is therefore universally recognised and binding in all parts of the world, including the provisions that governed the conversion from national currency units to the euro and the continuity of contracts. In principle, it follows that any changes to the structure of the euro in the other direction should also be enforceable elsewhere, including new conversion rates, provided these changes are consistent with EU law too. If the euro ceased to exist at all, the courts would presumably still look to the EU to determine what its legal successor should be and the terms on which any conversion should take place.

One way to reduce uncertainty could therefore be for the existing euro to be redefined by the EU, for example as a Northern euro or Southern euro, or as a basket of currencies along the lines of the old ECU. This would have the advantage of making it much more likely that the new conversion rates between the components would be legally enforceable internationally.

However, this solution would require the agreement of all member states. Crucially, it would not help a country (or small group of countries) that wanted to break away from the euro completely.

In summary, a country facing extraordinary economic difficulties could probably leave the euro-zone without also having to leave the EU. Nonetheless, it would clearly be in a better position if exit could be agreed with other members either in advance or retrospectively. Leaving the euro could therefore be much more difficult without the cooperation of other EU member states and especially so for a weaker country. Leaving the EU at the same time would reduce some of these legal obstacles, but could, of course, have many other costs.

Recommendations

- The authorities should provide as much clarity as possible on the legal issues as quickly as possible, including the status of the exiting country's membership of the European Union and the impact on international contracts currently denominated in euros.
- This will require cooperation with other EU member states and institutions, notably the European Commission and the ECB.

3.3 Relations with other EU members

While planning their exit from the euro, the Greek authorities should also consider how best to retain constructive relations with other members of the EU.

The effect on relations with other EU and euro-zone members would depend on how and why the exit took place. A hasty exit about which other members were not warned and which involved huge defaults on international debts would be the most damaging, materially reducing the country's influence within the EU if, indeed, it managed to stay in. But a long-winded debacle involving numerous bail-outs ahead of eventual departure could be just as damaging.

The best way to minimise ill feeling would be to honour as many international debts as possible, especially to official creditors. But we explain elsewhere that, in order for the departure of a weaker economy to be successful, that economy would have to default heavily on its international debts.

Six steps to soften the blow

Subject to that, then, there are at least six steps that a departing government could take to help matters:

First, pre-warn. The government in question should allow others as much time as possible to arrange their affairs. It would not be possible to inform other governments much in advance as the news would leak into the press and financial markets, causing capital flight. But, by imposing bank holidays, a window can be created between the announcement of its departure and the point at which the new currency was operational. In that period, other governments could decide how to shore up their own finances and support their private sectors.

Second, coordinate planning. In this short window, plans for the economy's departure could be made in conjunction with other euro-zone and EU

governments. For example, while large defaults would be necessary, creditor countries could be offered a menu of default options involving longer maturities or immediate haircuts etc. This would mirror the latest proposal for how a large scale Greek default should be organised.

Third, stay within the law. Wherever possible, the country in question should attempt not to break EU laws or render treaties obsolete. In practice, of course, the spirit of numerous laws would have to be broken in order to exit at all. But laws could be circumvented rather than ignored entirely. For example, as explained earlier, a country can legally impose capital controls within the EU for a limited period if it wins the votes of a qualified majority of its members beforehand. In this instance, it would not be able to seek qualified majority approval before imposing controls, but it would be possible to do so afterwards. But if it imposed longer-term controls, it would be acting outside the law and would face substantial penalties if it wished to remain within the EU.

Fourth, stay within the EU. Leaving the euro-zone and establishing a new currency would be an enormous shock. It would be as well not to compound this by leaving the EU too – even if this ultimately proves to be desirable or inevitable. Accordingly, at the point of announcement the government should declare the country's intention to remain in the EU.

Fifth, leave quickly. Once it has become clear that a country needs to leave the euro-zone, it should waste no time doing so. Accepting more and more bail-outs before finally deciding that membership is impossible, then leaving and defaulting, could be far more damaging than simply leaving immediately. So far, best practice has certainly not been followed on this front. There is already clear evidence that the core euro-zone governments are tiring of Greece's financial requirements and would perhaps prefer a speedy exit.

Alternatively, it might be argued that staying in the euro-zone until the other countries became desperate for you to leave would ultimately lead to better international relations than an immediate departure. However, we doubt that the shock of a surprise announcement would be as damaging to a

country's reputation and international standing as the financial cost of bail-outs in a long-winded exit.

Sixth, manage the media. Any departing economy should stress in public appearances that its departure had been amicable and that it still had great trust and admiration for the euro-zone, EU and its member countries. To leave and then deride the experiment publically would be a mistake.

Recommendations

So the way best to preserve good relations with other EU members is to:

- Honour official debts (as far as possible).
- Pre-warn other governments.
- Co-ordinate planning.
- Stay within the law.
- Stay within the EU.
- Leave the euro-zone quickly.
- Make friendly statements about other euro members in the media.

4 MANAGING THE REDENOMINATION

In this section, we examine the practical implications of redenominating currency in Greece from the euro to a new drachma.

First, we discuss the rate at which euros should be converted to drachma. Second, we discuss the introduction of new notes and coins. Finally, we review the options for minimising capital flight from Greece.

4.1 Choosing the conversion rate

At the point of departure, the Greek government will need to declare a conversion rate from euros into drachma. What should it be? In one sense, the conversion rate is largely irrelevant. If everything was redenominated at the same rate, it would not matter to Greek people whether the drachma was introduced at 100 or 1 per euro. If a household's weekly shopping bill of 100 euro became 10,000 drachma and its income of 200 euro became 20,000, the shopping would be just as affordable as it was before.

Moreover, whatever the conversion rate, the foreign exchange markets would be able to depreciate the new currency to whatever level they thought appropriate. If the conversion rate were 100 drachma per euro, it would be just as easy for the exchange markets to trade it at 200 per euro as it would to trade it at 2 per euro if the conversion rate had been 1-for-1.

There are some second order considerations, however, which mean that the rate of conversion does matter. Suppose that the conversion rate was 1.99 per euro and a taxi ride previously cost 5 euro, the new price should be 9.95 drachma. It would clearly be tempting for the taxi driver to round this up to 10 drachma.

Rounding-up is common in cases of redenomination and can generate a pick-up in inflation. When the UK introduced the decimal coinage system in February 1971, there was a widespread view that retailers used the change as a way to secretly raise their prices.

In an attempt to overcome the rounding-up problem when the euro was launched, a law was introduced stating that when rounding took place, amounts in euros had to be rounded to the nearest cent⁵ — up or down. National agencies were in charge of monitoring the correct application of the conversion rate and rounding rules. In theory, they were entitled to enforce the rules using fines, although we can find no examples of them

⁵ Council Regulation (EC) No 1103/97 of 17 June 1997

having been administered. The problem is that, even once laws and controls are introduced, it is difficult for the authorities to distinguish a normal administered price increase from unlawful rounding-up related purely to the currency conversion.

There is little hard evidence that rounding-up actually did cause inflation. But, in both the case of decimalisation in the UK and the introduction of the euro, there was certainly a public perception that it had. This might be because the prices of many cheap, frequently purchased products that have little weight in overall price indices but which consumers really notice were rounded-up⁶. Whatever the reason for it, this perception is important. Merely the belief that prices are rising faster can cause a rise in inflation. Moreover, public discontent caused by any perception of ‘rounding-up’ would clearly be best avoided in the fragile and dangerous situation that would follow an exit from the euro.

Accordingly, our suggestion is that the new currency should be introduced at parity with the euro. Where an item used to sell at 1.35 euro, it would now simply sell at 1.35 drachma. This would not only avoid the temptation for retailers to round-up, but also make clear to consumers that this had not been the case, and promote acceptance and understanding throughout the economy.

Recommendation

- A country leaving the euro-zone should introduce its new currency at parity with the euro.

⁶ Angelini & Lippi (2007). and Beuerlein (2007).

4.2 Introducing new notes and coins

In an ideal world, new drachma notes and coins would be available to coincide with the launch of the new currency. In practice, though, there are long lead times — typically around six months — associated with printing notes and minting coins. It is unlikely that this can be reduced below a few weeks.⁷ It is doubtful that such printing and minting arrangements can be kept secret, thereby opening up all the downsides of openness discussed above. So what are the options?

Despite popular misconceptions, there is no possibility of using as Greece's new national currency those euro coins which bear Greek national symbols and euro notes whose serial numbers reveal that they were issued in Greece. Under the euro-zone's established arrangements, all euro notes and coins are exactly that, euros, regardless of where they were issued and what symbols or serial numbers they bear.

One feasible option would be, once the announcement of departure was made, to stamp existing Greek holdings of euro notes as drachma. There are umpteen examples of stamping or over-printing.⁸ But this would offer little advantage in this case. Historical examples of stamping have typically involved either the assertion of some change in national sovereignty, often associated with the replacement of an old, or soon to be worthless, currency with a new one of current good value.

The situation under consideration here is quite different. The euro is set to continue, and it is the currency of a continuing entity, the euro-zone, and behind that, the EU. There is a high chance that euros overstamped as drachma would continue to be viewed as euros and, since the drachma would have depreciated against the euro, there is a good chance that euros would disappear from circulation in Greece. If Greece were nevertheless to opt for over-stamping, to overcome this problem, it would be helpful to

⁷ We discuss the evidence on how long it might take in Appendix A5.

⁸ See Appendix A6.

have the cooperation of other central banks, including the ECB. If they declared that stamped euros were to be regarded as drachma rather than euros then that would effectively stem the demand for stamped notes in the belief that they were still euros.

In any case, the euros in private holdings, as opposed to in bank vaults, would surely not be surrendered for stamping. If they could not be used, they would simply disappear from circulation to be used or exchanged outside Greece, in other parts of the euro-zone. This would exacerbate any problems arising from the reduction in cash available.

For these reasons we believe that over-stamping is not an attractive solution.

Our proposed solution is: (i) to do without new national notes and coins while they are being printed and to rely on non-cash means of payment for the bulk of transactions; and (ii) to continue using euros for the remainder.

Doing without cash

In today's world, it is not necessary to have physical currency, i.e. notes and coins, in order to have a currency, i.e. a national money. After all, when the euro began in 1999, there were no euro notes and coins in circulation. Yet foreign exchange and other financial markets for the euro came into being immediately.

It could work this way for a country withdrawing from the euro. On D-Day, it would declare a new currency, and redenominate bank deposits and other assets into that currency. It would instruct banks and all other financial agents that from the transition point, say midnight on D-Day, all amounts that say euro should be re-expressed as drachma. An exchange market in drachma would commence and the drachma's exchange value would immediately fall below the conversion rate between euros and drachma announced by the authorities. All this can be accomplished without there being any drachma notes or coins.

But the introduction of the euro in 1999 does not provide a template for euro exit. For although there were initially no euro notes and coins, there were national physical currencies that continued to be used for transactions after the euro was announced but before euro notes and coins were available. In the case considered here, however, there would be none.

How serious would it be not to have new notes and coins? And what arrangements could be put in place to minimise the difficulties?

The consequences of not having cash

Although the likely temporary absence of new notes and coins does constitute a difficulty, it is not as serious as it might seem at first. Cash has become less important over time as credit and debit cards have become more popular and electronic transactions have increased. An ECB survey released in April 2011 revealed that for around 70% of firms in the region, cash accounted for under 5% of total turnover.

Virtually all business-to-business activity takes place without cash and would be unaffected. The same applies to the overwhelming majority of financial transactions and the bulk of the payments of wages and salaries. Even the amount which is currently transacted in cash must be considerably more than the amount which absolutely *has* to be conducted in cash even in extreme circumstances. A good proportion of the transactions that are currently made in cash could surely be made by credit or debit card, cheque, bank instruction or IOU.

This marks a radical distinction from virtually every other occasion that monetary unions have broken up and new notes and coins have had to be introduced. The further back you go in the history of the last century, the greater will have been the proportion of economic activity that will have been transacted in cash. Accordingly, the economic damage that would have been caused by the unavailability of cash would have been greater. Even a few decades ago, cash had become the ‘small change of the economic system’.

Admittedly, cash is still important for small purchases. The same ECB survey showed that 87% of purchases under 20 euros were made using cash. But firms which already had the technology in place could accept card payments even for small purchases. This would now apply to virtually all retail outlets.

Even now, it is possible to make small purchases using debit cards, without typing a security number, by waving your card over a reader. In the UK, the number of cards in issue with this contactless functionality is 19.6 million, whilst there are approximately 73,000 contactless terminals. The technology is available in France and Italy too. Pre-paid cards, like London's Oyster travel card, are becoming more popular — and are used, for example, in canteens in large workplaces and for snacks and meals in many schools.

Such technologies are less prevalent in Greece and would hence be less helpful in managing the transition period before notes and coins were available. But they do exist.

For small businesses where the administration costs of card payments would be too high, or which might not have the technology (e.g. taxis or newspaper stands), cheques could be written or, where the relationship between buyer and seller was strong enough, informal credit arrangements could take place. Indeed, there may be a role for government in assisting the wider roll out of card technology in these areas.

Cash is of overwhelming importance in the informal economy, which covers a huge proportion of domestic services, such as gardening, cleaning and babysitting. The solutions here would be to: (i) use euros (as explained below); (ii) run up debts, to be redeemed when new drachma notes were available (a form of trade credit); or (iii) formalise the transactions within the normal economy. The latter would have the advantage (especially valuable for an economy such as Greece) of increasing tax revenues.

Continuing to use euros

Where none of these solutions could work and where it was absolutely necessary to transact in cash, the most convenient solution would be to allow these payments to continue to take place in euros. This arrangement would be made much more convenient by the adoption of our proposal that the conversion rate should be 1-for-1. This would mean that initially all prices and nominal amounts would be the same and euro notes and coins could continue to be used in the same way, and in the same amounts, for all small transactions, thus meaning that slot machines and so forth would continue functioning without alteration.

The problem is that the exchange value of euros would have risen compared to the equivalent in drachma and hence people might be reluctant to spend them. If the euro price of, say, a taxi ride, was unchanged it would become expensive compared to wages and other (drachma-denominated) prices.

The disruption and disquiet that this would cause should not be overdone. By definition, the amounts in question would be small. As a result of euro exit, there will be some dramatic shifts in relative prices and relative wealth. So just because, in some cases, someone has to pay 30% or so more for their bus fare should be a relatively minor consideration. Once new drachma notes and coins started to become available this problem would gradually diminish.

Moreover, although in using their euro coins and notes for these small transactions people would suffer an opportunity cost, it wouldn't seem that way to most people because the actual price in euros for their newspaper, bus ticket, taxi fare or whatever would be the same as it always was.

Dual pricing

Furthermore, it would always be possible for vendors to accept a lower price for euro cash than for drachma cheque or via debit or credit card. Indeed, for a time the country might effectively operate to some extent with a pricing structure in two different currencies: euro (for cash) and drachma (for non-cash). This would not be ideal, but it would be workable.

There are examples of countries using a dual currency system after a monetary shock. After the collapse of the Soviet Union, for example, there was a period of dual circulation of the ruble and the new national currencies. Even now, many countries effectively operate with dual currency systems, and in others it is common to accept foreign currency for some transactions (e.g. euros in Switzerland or in London).

Of course, it would be up to the vendors of goods and services priced in drachmas to decide whether or not to put up their drachma prices partially or wholly in line with inflationary impulses stemming from the fall of the exchange rate. But this issue is the one that normally arises in response to a devaluation. It does not derive directly from currency redenomination or the changing availability of notes and coins, or from our proposed solutions to these problems.

Legal tender laws should not inhibit the operation of such a dual system. It would be possible for a government to announce that both euros and drachmas are legal tender. It can then later change the law to state that only drachmas are now legal tender. This occurred in many of the Baltic States when they left the Soviet Union.

Nor would there be a problem created by limited acceptability of the old money (euros). In many cases where a monetary union collapses the old money either becomes worthless or is at least deemed less desirable. Accordingly, it is impractical to expect stocks of the old currency to be used for transactions because retailers and other vendors will be reluctant to accept them. By contrast, in the case considered here, vendors would be delighted to accept euro cash because it would be worth more than electronic drachma of the same notional amount.

The problem would rather lie in persuading people to use their euros in this way. Unless there was effective dual pricing throughout the economy which allowed someone to pay a lower price if using euros, there would be a constant drain of euro cash out of circulation and the stock of euro cash in active use in Greece would thereby steadily fall. It might be possible to reduce the scope of this drain by obliging firms to return notes and coins to

the banks, rather than hoarding them, and to oblige the banks to be ‘generous’ in providing euro notes and coins for cash withdrawal.

But there is a more fundamental problem here. Knowing that euro notes and coins were worth more than their drachma equivalents, if after D-Day people could withdraw euro cash 1-for-1 against deposits that were now denominated in drachma, there would be a clear incentive for people to try to empty their bank accounts of cash. In the process this could cause a liquidity crisis for the banks which the national central bank could not allay.

One solution might be, at the point of redenomination, to allow a certain low fixed amount, say 100 euros, to continue to be denominated in euros, effectively creating two bank accounts for every one in operation at the time of the announcement of the new currency. Euro cash withdrawals would only be permitted against these euro amounts.

Alternatively, there is the option to stamp as drachma all euro notes that were available from banks so that people could only withdraw euro notes stamped as drachma from their accounts. But this would run into the problems discussed above, and is not our recommended solution.

Whatever steps were taken with regard to the ability to withdraw some euro notes at 1-for-1 against drachmas immediately after the currency conversion, pretty soon these arrangements would have to stop. At some point, euro withdrawals would have to be treated as a foreign currency transaction, just as they would be if Greek citizens were to withdraw dollars, and the amount of euros they could withdraw from their new drachma-denominated bank deposits would vary with the exchange rate of the drachma against the euro. Our recommendation is that this should happen at the time of conversion.

Recommendations

- Order the printing of new notes and the minting of new coins as soon as the announcement is made to withdraw from the euro.
- Accept that there will be a period without new notes and coins.

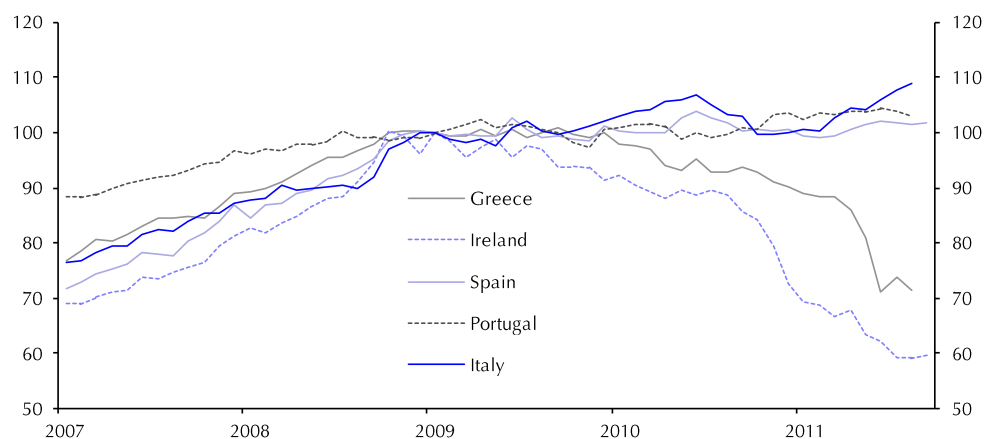
- In this interim phase, rely on non-cash means of payment for the majority of transactions.
- Allow euros to continue to be used where people so wish.
- As bank branches and ATMs are reopened after D-Day, all withdrawals of euros to be treated as a foreign currency transaction and debited from drachma accounts according to the prevailing exchange rate.

4.3 Preventing capital flight and banking collapse

In the run-up to exit, controls would be required to prevent capital flight and a banking collapse.

As soon as people suspected that a weak country planned to leave and/or default, they would want to withdraw bank deposits and other assets, fearing that they might otherwise be redenominated into a currency that would ultimately be worth far less than the euro. If a country's planned departure were kept completely secret, capital controls would not be needed to prevent capital flight in this way. However, complete secrecy is unlikely to be possible.

Figure 2: Bank deposits (Jan 2009 = 100)



Source: Eurostat

The extent to which this could be a problem is indicated by the size of the outflow from banks in Greece and Ireland already. (See Figure 2.)

Admittedly, this could simply reflect banks choosing to reduce the size of their balance sheets as economic uncertainty has made them reluctant to lend, but in practice this is nowhere near the whole story. Lending in both economies has fallen by less than deposits, and it started falling after deposits fell. Meanwhile, both countries' banks have demanded vast sums from the ECB at its emergency lending operations, revealing that they are struggling to fund their operations.

Under the current arrangements, a flight of money from a country's banking system would not induce a banking collapse because the country's banks can gain what amounts to unlimited finance from the ECB. Nevertheless, there are two reasons why a country contemplating euro-zone departure would be ill-advised to rely on this source of funding to prevent a domestic banking collapse.

First, the ECB might at some point stop access, or place limits on it, or insist on collateral which the troubled country's banks could not meet. Such an eventuality seems all the more likely since in the circumstances in question, the ECB, just like ordinary depositors in banks, might be worried about getting its money back. These concerns are likely to be proportionately greater with a large country, such as Italy, than with a smaller country, such as Greece.

Second, whatever support the ECB provided in euros would be due to be repaid in euros. Accordingly, if a country planning a departure allowed its citizens to continue withdrawing euros from its banks, it would be worsening the problem of the government's indebtedness after departure and depreciation. At the very least, this would intensify the difficulties with remaining euro-zone members and make it more difficult to establish good relations afterwards.

Accordingly, it would be advisable to prevent people from withdrawing more money from the country in the run-up to exit by effectively bottling it up within the domestic economy. In particular, when the redenomination was announced but before notes were available, cash machines, or 'ATMs', would need to be shut down. Otherwise, realising that the euro would become more valuable than the drachma, most Greek residents would attempt to withdraw as many euros as possible from their bank accounts. The maximum daily withdrawal at ATMs in Europe is typically around 300 euros. If every Greek citizen of working age withdrew that amount, this would amount to 2.3bn euros per day, or a reduction in banks' assets of 3.5% per week. In practice, banks would soon run out of notes.

Our proposed shutdown would be quite simple – ATMs are basic computers that connect to various networks via a 'switching company' to

obtain information about each customer's bank balance etc. If the signal at each switching company was shut down, money could not be withdrawn.

The exiting country could simply declare a bank holiday in which all banking transactions, including those conducted electronically, were prevented. One approach would be to make the announcement of departure on a Friday, after the close of business, leaving the weekend, when most banks would be closed anyway, to make the necessary arrangements. But this could not be allowed to be a normal banking weekend as electronic transactions would still need to be prevented and ATMs shut down.

If more time were needed then the banks could be forced to close, or at least forced to close for deposit withdrawal, on Monday and Tuesday. Making use of a national extended bank holiday period, such as over Easter, could also be useful.

Withdrawal of notes from ATMs and across the counter could be permitted again as soon as arrangements could be made, as explained above, to treat these as withdrawals of foreign currency debited against drachma bank deposits according to the prevailing exchange rate.

Wider controls

More stringent capital controls could be imposed. Resident households and businesses might be forbidden from acquiring foreign assets, investing overseas or holding bank accounts outside their own country. Borrowing and lending abroad can be forbidden or limited. Residents might be required to exchange any foreign currency acquired through sales, gifts, subsidies and so on back into the domestic currency. Foreign businesses operating in the exiting country might be forbidden from repatriating profits. Fines could be imposed for violation of any of these rules.

Such controls could be applied to a large range of transactions, preventing or limiting the purchase of foreign currency by domestic residents or the sale of domestic currency by foreigners. According to the IMF, relevant assets and transactions would include: equities; bonds; money market instruments; collective investment securities; derivatives; commercial

credits; financial credits; guarantees and insurance; direct investment; real estate transactions; bank loans and deposits; and gifts and inheritances.⁹

But such drastic actions would in all likelihood be unnecessary for Greece. In our recommended approach, the critical period during which substantial capital flight is possible would only be a few days. Provided that the banks are closed for this period and electronic transactions are blocked, as we recommend, the most damaging aspect of capital flight, namely the threat to the banks, can be thwarted.

Of course, there is a risk that capital flight might begin sometime *before* the Greek authorities announced the euro-zone exit. There might be a leak during the planning stage or market forces might simply make it clear that exit was *inevitable* sooner or later. It is our recommendation that plans for exit be kept as secret as possible and that the decision to exit is made before market forces become too strong. However, if either of these things do not happen and capital flight begins, capital controls should be put in place to prevent it as soon as possible. Equally, though, they should be withdrawn as soon as possible once exit has happened. (See section 5.)

Recommendations

- Once the announcement of euro withdrawal was made, close the banks, preventing any bank transactions, including cash withdrawal by ATM.
- More drastic controls on all financial institutions, and all financial transactions, can and probably should be avoided, especially if the close period occurs over a weekend.
- But if news leaks out early, in order to avoid having to close the banks for an extended period, wider capital controls would have to be imposed.

⁹

Johnston & Tamirisa (1998)

5 MANAGING THE DEVALUATION

In this section, we consider the devaluation aspect of euro exit.

First, we estimate the scale of devaluations required in peripheral countries to reverse recent losses in competitiveness, and we consider the potential measures that could be deployed by the authorities to minimise any sustained overshoot of these. Second, we review how any longer term inflationary pressure can be managed. Third, we set out an approach to handling the inevitable (but needed) default on sovereign and other debts. Fourth, we discuss how the integrity of the banking system can be maintained. Finally, we consider the implications for household finances.

5.1 The scale of devaluation

After leaving the euro-zone, it is inevitable that the peripheral euro-zone economies' exchange rates will need to fall sharply. Not only will these economies need to restore the competitiveness that has been lost over the past decade or more, but the exchange rate falls may need to go further. After all, over the next few years, all these economies look set to suffer from further drops in domestic demand, implying that a bout of strong export growth will be needed to prevent the overall economy from contracting sharply.

Needless to say, the size of the required falls in the peripheral economies' nominal exchange rates is uncertain and will differ from economy to economy. We have, however, considered the evidence and have views on the scale of devaluations needed.

On balance, Greece and Portugal might need their exchange rates to fall by up to 40%. Italy and Spain will also need substantial depreciations of as much as 30%. Given that the Irish economy is more open and appears more competitive, it may require a smaller fall in its exchange rate of perhaps up to 15%.

The risk and dangers of overshoot

Past experience suggests that there is a strong chance that the new currencies will initially depreciate by more than these estimates. We would not be surprised if the Greek and Portuguese exchange rates fell by 50% or more. Meanwhile, the Italian and Spanish exchange rates could depreciate by perhaps as much as 40% while a 25% drop in the Irish currency is feasible.¹⁰

Although the peripheral euro-zone economies will need their nominal exchange rates to fall substantially, there is certainly a risk that they

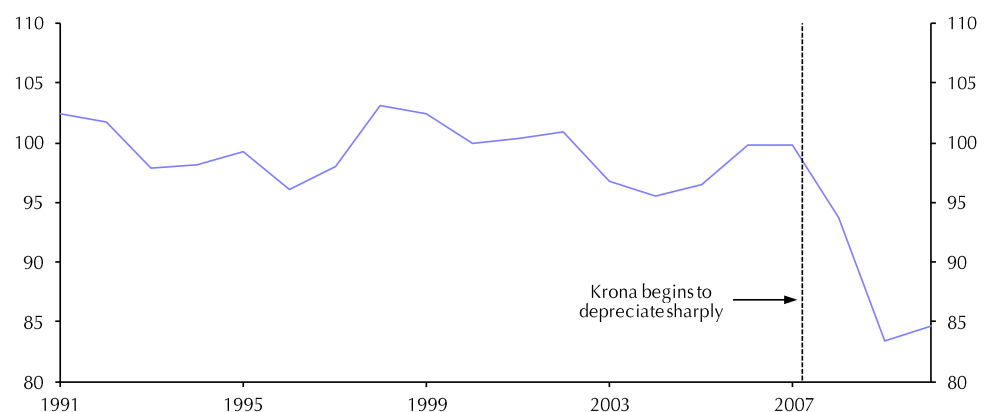
¹⁰

For a more in depth analysis of this issue, see Appendix A7.

experience too much of a good thing. For a start, if the economy has already undergone a large drop in the exchange rate, the marginal benefits of a further fall may be small. After all, in the short term at least, once supply bottlenecks and skills shortages form in the tradable sector, further falls in the exchange rate are unlikely to prompt an increase in tradable goods production, one of the main reasons for allowing the exchange rate to depreciate in the first place.

By contrast, the more the exchange rate overshoots, the greater the marginal cost to the economy of a further depreciation. If the fall in the exchange rate prompts the price of imports to rise by more than the price of exports (when both are measured in the same currency) then any given level of exports will be able to purchase fewer imports. Iceland's terms of trade plunged after its currency depreciation in 2008, implying a substantial reduction in the purchasing power of its exports. (See Figure 3.) Assuming that wages do not rise to fully compensate for the rise in inflation (which is what is required to improve competitiveness), real household incomes will fall. In 2008 and 2009, the fall in the krona and the economic downturn prompted Icelandic real wages to fall by over 12%.

Figure 3: Iceland's terms of trade (Ratio of export prices to import prices)



Source: Thomson Datastream, Capital Economics

In addition, the larger the fall in the exchange rate, the greater the chance of a more sustained bout of high inflation and nominal wage growth. A period of galloping inflation would result in the real exchange rate remaining at an uncompetitive level. The accompanying loss of confidence and increase in

uncertainty could stunt economic growth and prompt protests and civil unrest.

How could the fall in the currency be managed?

Given all this, policymakers will want to have a strategy in place to try to prevent excessive falls in the exchange rate. The first option would be to act pre-emptively and put in place credible monetary and fiscal frameworks. If the markets think that inflation will be low and stable in the medium term and that the government will keep the public finances on a stable footing, then an excessive exchange rate overshoot is less likely. Such a policy was adopted by the UK government after it exited the Exchange Rate Mechanism in 1992. Almost immediately after the exchange rate was allowed to float, an inflation targeting regime was implemented and institutional changes were introduced to make it more difficult for the government to manipulate monetary policy for political gains. This may partly explain why sterling stabilised pretty quickly.

In this case, the inflation targets should allow for some increase in inflation in the immediate wake of the new currency's establishment, to be followed, though, by a return to lower rates of inflation one or two years later. It might also be useful to establish limits to the use of quantitative easing and to publish a fiscal framework to constrain fiscal policy after the defaults. Finally, credibility could be enhanced by the establishment of some independent body to monitor the authorities' adherence to these targets (mirroring the use of independent members on the Bank of England's MPC).

But the credibility of the authorities in most of the peripheral euro-zone economies has taken a huge hit over the past two or three years. It may take time for policymakers there to gain the trust of the markets. If governments are determined to prevent what they perceive to be excessive falls in the exchange rate, they could implement other measures to try to control the currency.

Using target ranges

One possibility is that a target range for the exchange rate could be announced to help guide markets' expectations. But if markets do not think that the target range is realistic, such a policy may only prevent the exchange rate overshooting if the government can persuade the markets that it is willing to take decisive action.

The authorities could raise interest rates if the exchange rate fell below its desired level. But given the bleak medium-term outlook for domestic demand in these economies, policymakers will probably want a prolonged period of accommodative monetary policy. Accordingly, they might prefer to use other measures.

Another option would be for the government to sell foreign currency. But historical experience has regularly shown that this can end up being costly for taxpayers. Moreover, newly exited countries may not have enough foreign currency reserves to conduct such a policy for a sustained period.

Using capital controls to manage the currency

Capital controls could be put in place after the new currency was introduced in order to prevent a destabilising (and potentially inflationary) currency slump, as well as extreme weakness of domestic asset markets as people scrambled to sell assets and sell the proceeds on the exchanges.¹¹

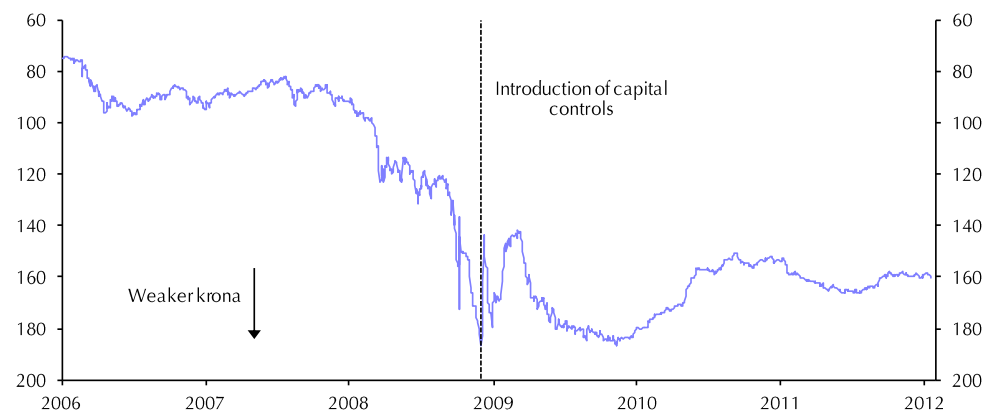
Iceland is an example of a country that has arguably achieved some success using capital controls to prevent its currency depreciating too sharply. In November 2008, draconian controls were put in place to restrict the amount of krona-denominated assets that residents and non-residents could exchange for foreign currency. In addition, all foreign currency holdings that domestic residents acquired were required to be converted back into

¹¹

If a strong country like Germany planned to leave the euro-zone, it need not fear large capital flight before its departure as its currency would be expected to appreciate. But it might still choose to impose capital controls before and after it left to prevent vast inflows into its banking system which could otherwise cause the new currency to appreciate too much, and/or domestic borrowing creating dangerous bubbles.

krona. The controls are still in place today. As Figure 4 shows, they have not completely eliminated exchange rate fluctuations, but the nominal exchange rate has been fairly stable since then. This is despite, in the three or so years after their introduction, official interest rates being slashed from 18% to 4.25%.

Figure 4: Iceland's exchange rate (krona per euro)



Source: Thomson Datastream, Capital Economics

There are many strong critics of capital controls, not least in Iceland. For example, Vilhjálmur Egilsson of the Confederation of Icelandic Employers has described controls as an ‘expensive mistake’. In addition to concerns about their legality under EU law, the main criticisms of controls for an exiting euro-zone economy might be split into four key themes.

First, capital controls may reduce the pressure on policymakers to implement painful reforms to improve the functioning of the economy and financial system. Malaysia delayed vital financial sector reforms after the introduction of capital controls. This was less of a problem in Iceland since it was forced to undertake various reforms in order to gain much needed loans from its IMF rescue package.

Second, capital controls often encourage corruption, with government officials selling licenses to convert currencies or buy and sell assets.

Third, while controls on capital inflows are generally thought of as helpful for emerging economies (and recommended by the IMF), empirical evidence suggests that controls on capital outflows (which are the type that

would be relevant to any weak country leaving the euro-zone) are ineffective in the medium run, partly because people find ways around them.¹²

Fourth, even controls designed to prevent capital outflows tend to discourage inflows too as investors are concerned about whether they will be able to get their capital, or even any return that they earn on it, out of the country in question.

Recommendations

- Greece and Portugal need devaluations of up to 40%; Italy and Spain up to 30%; Ireland around 15%.
- Act pre-emptively and put in place credible monetary and fiscal frameworks: inflation targets should be laid down; establish limits to the use of quantitative easing; publish a framework to constrain fiscal policy; and task an independent body to monitor the authorities' adherence to these targets.
- Interventions in the currency markets and capital controls have their difficulties, so it is probably best if policymakers avoid manipulating the value of their currency and allow the exchange rate to float freely.

¹²

See, for example, Edwards (2000) and Magud, Reinhart and Rogoff (2011)

5.2 Moderating the impact on inflation

We have argued that there would be substantial falls in the peripheral economies' nominal exchange rates after they left the euro-zone. This would have a major impact on the price level.

It is plausible that the exchange rate depreciation might raise the price level by about 15% in Portugal, 13% in Greece and 10% in Italy, Spain and Ireland. Assuming that this adjustment takes place over a two year period, the effect would be to raise the annual inflation rate by about 7% per year in Greece, about 6% in Portugal, and 5% in Italy, Spain and Ireland. Such increases in the price level would be sufficiently low to enable these countries to enjoy substantial falls in their real exchange rate as a result of euro-zone exit.¹³ Of course, if the peripheral economies exchange rates fell more sharply, the rise in the price level would be even greater.

What would happen to inflation subsequently?

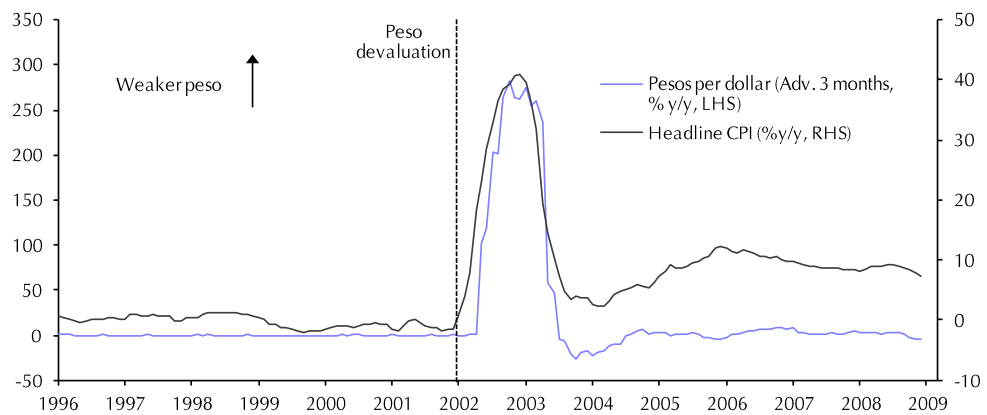
So would the shock to prices be short-lived or might it be sustained in permanently higher rates of inflation?

The historical experience suggests that on balance inflation is likely to fall back sharply after the initial shock. Following the devaluation of the peso in 2002, Argentine CPI inflation soared from an average of -1% in 2001 to about 40% by late 2002. (See Figure 5.) Although the exchange rate stabilised quickly, and inflation fell, it remained above its pre-crisis rate, averaging 3.4% in 2004 and 9.6% in 2005, partly reflecting the decision by policymakers to run an expansionary monetary policy. After the plunge in the Icelandic exchange rate in 2008, CPI inflation there rose from a low of 3.4% in August 2007 to 18.6% in January 2009; thereafter, CPI inflation fell sharply, and by the end of 2010 it had fallen below 3%. (See Figure 6.)

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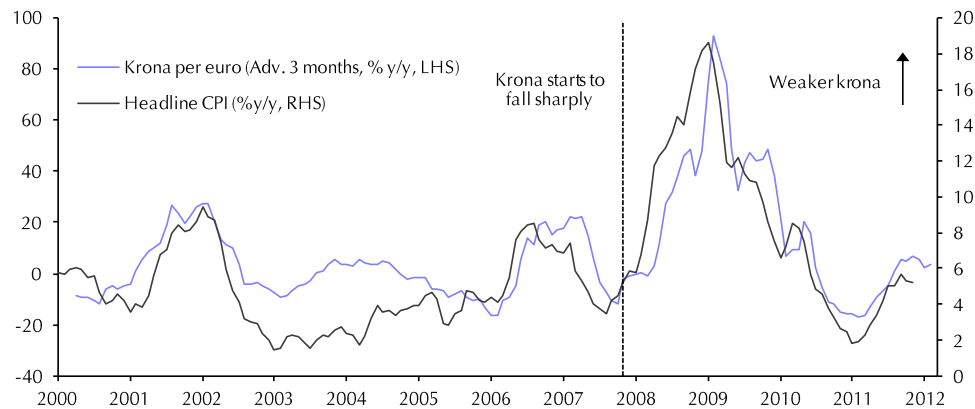
See Appendix A7 for a fuller discussion of this issue.

Figure 5: Argentina's exchange rate and CPI inflation



Source: Thomson Datastream, Capital Economics

Figure 6: Iceland's exchange rate and CPI inflation



Source: Thomson Datastream, Capital Economics

The key factor determining the impact of the exchange rate on inflation will be the amount of spare capacity in the economy. Of course, it is difficult to measure the amount of economic slack in an economy with any precision. However, the data that are available suggest that there is currently a large amount of spare capacity in all the peripheral euro-zone economies.

As Table 1 shows, in Q3 2011, GDP in Spain and Portugal was 3.7% below both economies' pre-recession peaks. The equivalent Italian figure is slightly larger, at 4.6% of GDP. At 11.6% and 13.0% respectively, the figures for Ireland and Greece are even bigger. Since these economies will probably contract this year and next, the amount of slack is likely to rise further over the next couple of years.

Table 1: Indicators of spare capacity

	Italy	Spain	Greece	Portugal	Ireland
GDP (Q3 2011, percent below its peak)	4.6	3.7	13.0	3.7	11.6
Difference between actual and potential GDP (% 2011 OECD est.)	-1.7	-4.9	-15.0	-2.7	-7.8
Unemployment rate (Dec. 2011)	8.9	22.9	19.2*	13.6	14.5

Source – Thomson Datastream, * October 2011

What can be done by policymakers to help prevent high inflation in the medium term?

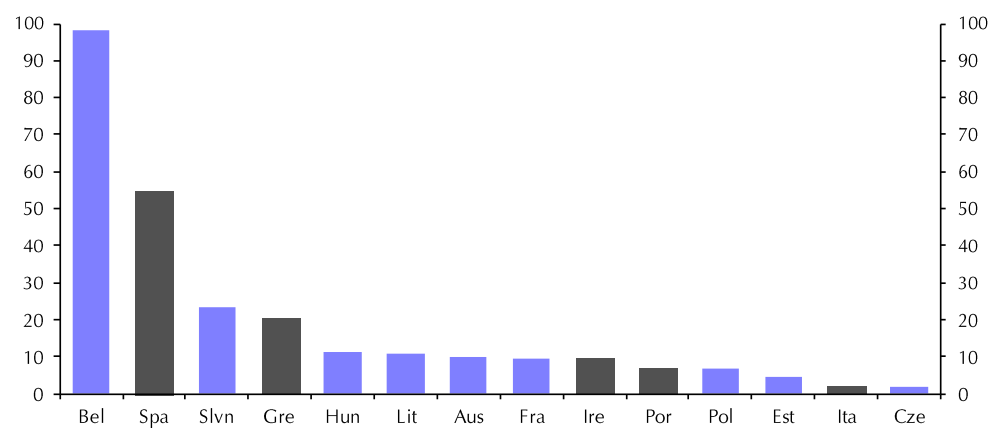
The first main way that policymakers can keep a lid on inflation is to ensure that inflation expectations remain anchored. After all, if firms and workers expect overall inflation to remain high, they are likely to demand higher prices and wages to compensate. The best way to do this would be to adopt the set of measures discussed above as a way of limiting the size of the exchange rate fall. Such a package could be highly effective in sustaining confidence. In the UK, after the ejection of the pound from the ERM in 1992 the markets' expectations of RPI inflation fell.¹⁴

The risk of high levels of inflation in the medium-term caused by the development of a wage price spiral could also be reduced by eliminating real rigidities that exist in the economy. One sort of measure that would be vital to prevent a wage price spiral is the elimination of indexation arrangements that tie the growth of wages to prices. This form of indexation was prevalent in Argentina and Brazil during their bouts of hyperinflation that began in the 1980s.

According to a survey conducted by the ECB in 2007 and 2008, wage indexation is rare in Italy and not that common in Portugal and Ireland. (See Figure 7.) But 55% of Spanish firms and 20% of Greek firms reported that their wage deals were automatically indexed to inflation. If policymakers in these two economies wanted to reduce the risk of second-round effects emerging in the event that they leave the euro-zone, they need to outlaw such contracts immediately.

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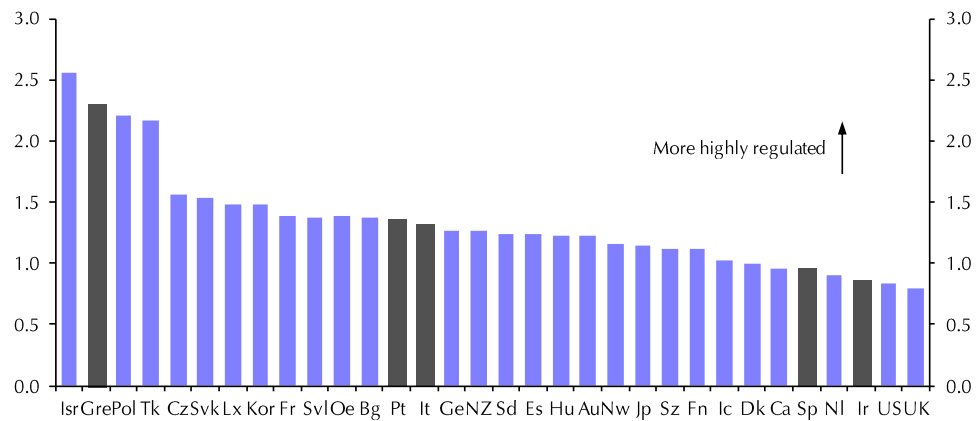
As given by five year breakeven inflation rates between index-linked and conventional bonds.

Figure 7: Firms with automatic wage indexation mechanisms (%)

Source: ECB, Capital Economics

Ironically, anti-inflation credibility would be enhanced by the introduction of one form of indexation, namely on government bonds. When it issues indexed bonds, a government reduces its incentive to let inflation rip. Moreover, if it proves to be more successful in controlling inflation than the markets believe it will, by issuing index-linked debt, it will reduce its cost of finance. Countries newly withdrawn from the euro may not need immediate access to bond markets. Even so, they could boost their anti-inflation credentials by announcing that it will issue such bonds.

If rules and laws exist that inhibit competition, firms may be more likely to pass on higher prices to their customers than if they operated in a more competitive market. As Figure 8 shows, in 2008, Greece and to a lesser extent Italy and Portugal are judged by the OECD to have much more highly regulated product markets than many of their euro-zone and Anglo-Saxon counterparts. Steps should be put in place in these economies to eliminate any impediments to competition. Irish and Spanish product markets, on the other hand, already appear to be pretty competitive and flexible by developed world standards.

Figure 8: OECD product market regulation indices (2008)

Source: OECD, Capital Economics

Recommendations

- Anchor inflation expectations by putting in place an inflation targeting regime and a fiscal framework to prevent the government running excessively loose fiscal policy.
- Outlaw wage indexation.
- Announce that the government will issue index-linked bonds.
- Introduce structural reforms to reduce real rigidities and boost competition in product markets.

5.3 Minimising the damage from default

Default on sovereign and other debts is both an inevitable and necessary outcome of devaluation. Indeed, although it should not be undertaken lightly and would certainly be disruptive, sovereign default is desirable for a number of peripheral economies regardless of whether or not they leave the euro-zone.

Default under external and internal devaluation

For many countries, default resulting from an external devaluation is likely to be preferable to the lengthy alternative of trying to manage poor competitiveness through ‘internal devaluation’.

Let us suppose that Greece needs to achieve a 30% reduction in relative costs through either: leaving the euro and experiencing an external devaluation; or deflation i.e. ‘internal devaluation’. Both of these imply a fall in the euro value of Greek GDP, tax revenues and indeed all other Greek drachma values. Indeed, if they occurred at the same speed, they would to all intents and purposes be the same. Their implications for the ability of the country to service its debt would be identical.

However, we would normally assume that an external devaluation would occur immediately, whereas an internal devaluation would be spread out over many years. Accordingly, the time path of the pressure to default would be different. In the case of an external devaluation, the pressure is there immediately, as the domestic currency value of interest obligations rises immediately.

With an internal devaluation, by contrast, the initial impact is zero, but builds up gradually over time. Although the extra burden of reducing this debt by the end of the adjustment period will be the same, in the earlier years it will be less, thereby implying that the total extra burden over the lifetime of the debt will be lower than in the alternative case of external devaluation.

However, in practice, in the case of internal devaluation the financial markets will probably see the nature of the growing problems ahead and accordingly bring pressure to bear immediately. (This is exactly what has happened already in the case of the euro-zone.) Moreover, there are two other factors to consider.

First, the point of the devaluation, internal or external, is to achieve an increase in competitiveness which will boost GDP. If successful, this will increase debt servicing capacity. This factor works in exactly the opposite way to the point above about the domestic currency value of euro debt. The immediacy of an external devaluation means that the improvement in real GDP and debt servicing capacity can come earlier, compared to the hard slog of domestic deflation. Furthermore, in order to achieve domestic deflation it may be necessary to pursue tighter policies with regard to domestic demand, thereby exacerbating the relative weakness of real GDP compared to the scenario with an external devaluation.

The second point is that whereas a domestic deflation increases the real value of all debts, including private sectors ones, and may thereby precipitate private sector defaults, an external devaluation only does this in so far as private sector debts are in foreign currency. Admittedly, in the case of a country withdrawing from the euro, effectively all debt will be in foreign currency, but that can be dealt with by redenominating them, along with other domestic money values, into the new currency. (See the discussion below and also in section 5.5.)

Redenomination of debts on exit from euro

Any country which leaves the euro-zone should redenominate its public debt into the new local currency. From a legal perspective, this would probably be considered a ‘default’ even if the country continued to service its debt throughout.

The advantage of redenomination is that it would prevent the public debt ballooning as a share of GDP and government revenues in the way that it has done following past devaluations in many emerging economies. Recent cases include Argentina in 2002, Russia in 1998 and South-East Asia in

1997. Redenomination would also have the advantage of removing any currency mismatch from the public sector balance sheet.

Negotiated debt restructuring

For some peripheral economies, redenomination alone may be sufficient to make the debt sustainable in future. Whether or not this will prove sufficient will depend on the government's initial debt stock, the general government deficit, growth prospects and the initial debt burden, as well as on the path of inflation in the period immediately after devaluation. As discussed in Appendix A9, Spain appears to have a greater chance of managing with redenomination alone, whereas Greece and Italy would be more likely to need additional debt reduction.

Any government which needs substantial additional reduction in its debt, at least in net present value terms, should make clear its intention to renegotiate the terms of its debt with creditors and to begin servicing its debt again as soon as practically possible.

To take the Greek example, it is clear that the Greek government needs to cut the Greek public debt stock sufficiently in present value terms to remove any reasonable doubt about the government's ability to service its debt in future. In this respect, the current plan to cut Greece's debt stock to 120% of GDP by 2020 does not seem to us sufficient (unless the debt service profile included exceptionally long maturities and low coupons). A figure of closer to 60% may be more appropriate.

The required scale of debt reduction would vary between countries, depending on the factors listed above. In line with historical precedent, the details of debt reduction and restructuring should be determined via negotiations between creditors and indebted governments. Creditors and debtors should be given the chance to take account of individual country circumstances. With this caveat in mind, some estimates of the size of debt write-off which might be required are set out in Appendix A9. These suggest debt reductions of up to 40% for Spain through to 80% for Greece.

International institutions and coordinated action

To achieve a large enough debt reduction, it will be necessary for official creditors, including the ECB and European Financial Stability Facility, to accept some losses on their share of the debt. The euro-zone should follow a long established precedent, from the rescheduling of sovereign debt of emerging economies organised through the Paris Club, for official creditors to accept an equivalent level of debt reduction to the private sector. The IMF should however retain its preferred creditor status as otherwise its future role as an international lender of last resort would be compromised.

We have considered the case for coordinated official support for sovereign debt restructuring from the IMF or other organisations, along the lines of the Brady Plan in the late 1980s and 1990s. However, we do not recommend this approach. Our main objection is that the inclusion of collateral in the new Brady bonds resulted in poorly targeted support for creditors; it was effectively a subsidy for all creditors which, in the euro-zone case, would mean mutual funds, investment banks and others who hold peripheral sovereign debt. It would be more efficient to target any official support for peripheral countries directly at the impacted banking sectors.

Borrowing after euro exit and default

Some countries which exit the euro-zone will be in primary surplus. This is indeed the strongest position to be in since it means that potentially they can fund their expenditures through tax revenues, without needing to borrow, at least if they are prepared to default on all interest payments. But not all potential euro leavers will be in this position. Moreover, in most cases, even if a government is in primary surplus, it would not normally be defaulting on all interest payments. Specifically, if it redenominates its debt it will still be making interest payments to bond holders, albeit now in drachma. Accordingly, the issue arises of how it will be able to fund itself after it has exited the euro and defaulted.

It is often assumed that governments which default are cut off from capital markets for many years. However, an analysis of past sovereign defaults

shows that a combination of debt reduction and devaluation has often provided a strong foundation upon which governments can re-establish the credibility of their fiscal policy and re-enter international capital markets surprisingly soon after a default. One example is Uruguay, which in 2003 was able to borrow within five months of a distressed bond exchange which was labelled as a 'default' by the rating agencies. Nevertheless, the historical record shows that the period between default and restructuring varies hugely.

In our view it should be the objective of euro-zone governments to re-gain market access as soon as feasible after reaching a satisfactory agreement with their creditors, in order to be able to manage government finances effectively and to re-establish the country's creditworthiness.

Nevertheless, governments would need to be prepared for markets not being so keen to lend. There are a number of things they can do:

- Get their central bank to buy at least some of their debt either directly or indirectly. (Quantitative Easing.) But this is not an unlimited option if they are keen to retain credibility in the markets and obviate what could be a complete collapse of the currency and a dramatic surge in inflation.
- Announce a plan to boost fiscal credibility to stimulate demand for debt, as described above.
- Issue index-linked debt.
- Impose requirements on domestic financial institutions to hold a certain amount of government debt.

Nevertheless, in some conditions these measures might not be enough to ensure a continued flow of finance. Accordingly, the government should prepare some emergency spending cuts which can reduce its financial requirements in the short-run, until market confidence recovers and they are able to access markets again for funds.

Corporate debts

We have also considered the case for the government announcing a redenomination of all euro-denominated contracts between Greek and non-Greek private sector companies.

While this would have the advantage of simplicity and would improve the aggregate balance sheet of the Greek private sector, it would be difficult to justify in legal (or equity) terms because of the huge variety of situations in which Greek firms will find themselves. Many large Greek companies with euro-denominated liabilities may find themselves unable to service these debts in euros as originally contracted, but there will be others which find their financial position *improved* by the devaluation. It would be absurd to insist (and difficult to defend legally) that these companies should default on their euro-denominated debts.¹⁵

Contracts between private counterparts in the euro-zone should therefore be renegotiated purely through the normal private sector channels, and based on insolvency legislation in the appropriate international courts.

That being said, there may be a case for government intervention to support or facilitate private sector debt restructuring if the volume of defaults becomes too large for the banks to handle, or if there are spillover effects from private defaults to the domestic Greek banking sector, or implications for sovereign debt negotiations. There are precedents – including in Iceland, Indonesia and more recently in the Vienna initiative for central and eastern Europe – for such coordinated action on private sector debts.

Banking liabilities

The one area in which there should be a coordinated and a one-size-fits-all approach to debt redenomination is with respect to the banking sector. Currently the banking sectors of peripheral economies have a significant mismatch between foreign assets and liabilities, as they have large liabilities

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See Appendix A9.

to other parts of the euro-zone (including the ECB and in some cases their own parent banks) while their assets are more heavily concentrated in their domestic economy.

After D-Day it will be essential to redenominate domestic bank loans to domestic companies into drachmas as there would otherwise be a huge increase in non-performing loans which would undermine the financial position of the banks. Consequently the banks will need to redenominate their foreign liabilities into drachmas too, so as not to suffer an immediate large balance sheet loss of the kind which pushed the entire Russian banking sector into insolvency in 1998.

Recommendations

- After D-Day Greece should announce that it will service its public debt in drachmas (i.e. redenomination).
- Greece should also announce a moratorium on government debt service until debt reduction has been negotiated with creditors. Debt negotiations should be undertaken bilaterally between governments and representatives of the creditors and should take into account national circumstances. But the objective should be to bring down the ratio of debt to GDP to around 60%.
- In some cases – perhaps Spain – it may be possible to achieve a sustainable debt ratio through redenomination of the debt alone. But others, like Greece, will need an additional reduction in debt.
- Official creditors other than the IMF should accept a *pro rata* reduction in their share of Greek debt.
- Banks' balance sheets should be redenominated into drachmas in their entirety.
- The debts of other private companies should not be redenominated but the government should stand ready to assist or coordinate in rescheduling external debt of the private sector if that proves necessary.

- Put in place measures that will give markets the confidence to lend again as soon as possible after default as well make preparations should the Greece be frozen out for some time.

5.4 Securing the banking system

In the event of a euro-zone break-up, the banking sectors of peripheral countries would be likely to become insolvent without intervention. The scale of the threat to banks in core economies would depend on the size of currency devaluations and private sector defaults.

It is well documented that when a country suffers a large devaluation and sovereign default it is also likely to experience a banking crisis. The numerous historical examples include Indonesia in 1997, Russia in 1998 and Argentina in 2002. In this situation, the banks suffer losses on government bonds, which typically constitute a large share of bank balance sheets, and on loans to companies which are adversely affected by the devaluation.

In addition, there is often a bank run around the time of devaluation as people withdraw their savings in anticipation of a banking crisis and/or devaluation. All of these factors are already at work in Greece and other peripheral economies, and all would be likely to get worse as the break-up approaches.

Government protection

There is a clear case for governments seeking to shield or protect banks from the impact of euro exit because of the potentially devastating consequences of bank failures for the rest of the economy. A currency mismatch is one aspect of this; credit losses are another.

After a sovereign default and/or exit from the currency union, the government would need to ensure that bank balance sheets were strong enough to prevent a renewed bank run after they reopen. In an extreme case, temporary nationalisation of the banks may be necessary.

Options which governments may consider include: (i) redenomination of deposits and other liabilities into the new currency; and (ii) government issuance of new bonds to recapitalise the banks. If the government is in

default on the bulk of its sovereign debt, it would still be possible to service these new bonds in order to ensure that the banking sector remains solvent. This is something which the Argentine government did in both the 1980s and in 2002, issuing bonds to compensate banks for losses during financial crises. The Argentine government made it a priority to service these bonds even when in default on some others.

On the whole, industrial companies should not be offered any specific protection because they do not have the same systemic role in the economy, i.e. there is no manufacturing sector equivalent to a run on the banks — although, if some economies were threatened with widespread bankruptcy of their industrial sectors, there may be a case for the government to take an active role in organising or incentivising debt restructuring.

Recommendations

- Immediately make clear full support for the banking system both through provision of liquidity from its newly re-constituted central bank.
- Leave sufficient ‘fiscal space’ to recapitalise the banks, possibly through issuing them with new government bonds which would need to be treated as senior to the bulk of the government stock of bonds.
- In an extreme case, temporary nationalisation of the banks may be necessary.

5.5 Implications for household finances

An economy's exit from the euro-zone would have some complex indirect effects on household finances. These would depend on how the economy performed after exit. A long recession would clearly cause unemployment, wage cuts and falls in equity prices that would damage household incomes and wealth. On the other hand, if the economy performed better outside the euro-zone, there would be a positive impact on household finances.

But these are 'normal' economic effects. Here, we concentrate on the immediate effects on personal sector finances arising from currency conversion and depreciation occurring on euro exit.

What would be redenominated?

There would have to be a redenomination of all nominal values, encompassing: wages; retail and producer prices; property prices; equity prices; bank deposits; pensions; mortgages; and bank loans.

These nominal amounts fall into three broad groups. Wages, bank deposits, pensions, mortgages and bank loans are all contractual values that could be redenominated by law into a specified amount of the new currency. Retail and producer prices are administered i.e. specified by the seller, so although at the point of redenomination they could be translated at exactly the officially specified conversion rate, in practice it would be open to sellers to set prices slightly higher (or even lower) than this. Moreover, even if firms do not immediately reset prices, many will do so over the succeeding period in response to increased costs arising from the depreciation.

Meanwhile, equity and property prices are market-determined. After D-Day they will probably be quoted in drachma (although they may continue to be quoted in euros) but this price may go up or down with economic forces and market sentiment.

Wages and prices

Our suggestion of adopting a 1-for-1 conversion rate simplifies the issue and obviates or minimises some of the problems. In purely mechanical terms after the introduction of the new currency, prices would be exactly what they were before, although now expressed in the new currency. The same is true for wages, with 10 euro per hour now equivalent to 10 drachma per hour. If everything else was redenominated in the same way and there was no inflationary effect, then consumers' purchasing power would be unaffected. Thus there should be no change to personal finances from the currency conversion itself.

But as we argued in previous sections, lots of prices throughout the economy would rise in response to the depreciation. Import prices would rise rapidly as the new currency depreciated. Moreover, this would put upward pressure on the price of domestically produced goods and services in competition with imports (so-called 'importables').

For exports that were priced in foreign currency, the drachma price would automatically rise as the drachma exchange rate fell. For other exports priced in drachmas there would be a natural tendency for the drachma price to be increased to offset what would otherwise be a fall in the foreign currency price. The rise in the domestic price of exports would put upward pressure on the price of goods and services that are sold in domestic markets but which could be exported (so-called 'exportables', such as olive oil). And there would even be some indirect upward pressure on the price of non-tradeables.

Real wages

The depreciation of the new currency would therefore have profound implications for real wages, and for the real value of all nominal amounts fixed in drachma. To make the devaluation work, i.e. to ensure that the real exchange rate fell as well as the nominal rate, it would be vital that wages did not rise to compensate. Although initially the euro exit might appear to leave real wages unscathed, in practice, in the days, weeks and months following the exit, real wages would fall.

The size of the fall would be dependent upon the extent of the fall in the currency, and the degree to which the effect of this fall was absorbed by producers, as analysed in previous sections. On the basis of the experience of previous devaluations and the likely scale of depreciations for the peripheral countries of the euro-zone, in the first couple of years after euro exit, real wages might readily fall by anything between 5% and 20%.

Bank deposits

The redenomination of bank deposits would imply that, just like wages, they initially had the same domestic purchasing power but it would quickly transpire that their purchasing power had fallen. Moreover, immediately after the euro exit, they would be worth less if used abroad and in relation to any foreign currency liabilities.

Any Greek residents' bank deposits abroad could not be redenominated, benefitting those in Greece that held them. Comparatively few households in peripheral euro-zone countries hold deposits abroad, but the numbers have been rising as speculation of a euro break-up has mounted. Those that do hold such deposits are almost certainly rich. Governments might consider imposing higher taxes on such deposits to avoid inequitable shifts in relative wealth, but this would be difficult to enforce and police.

Bank loans

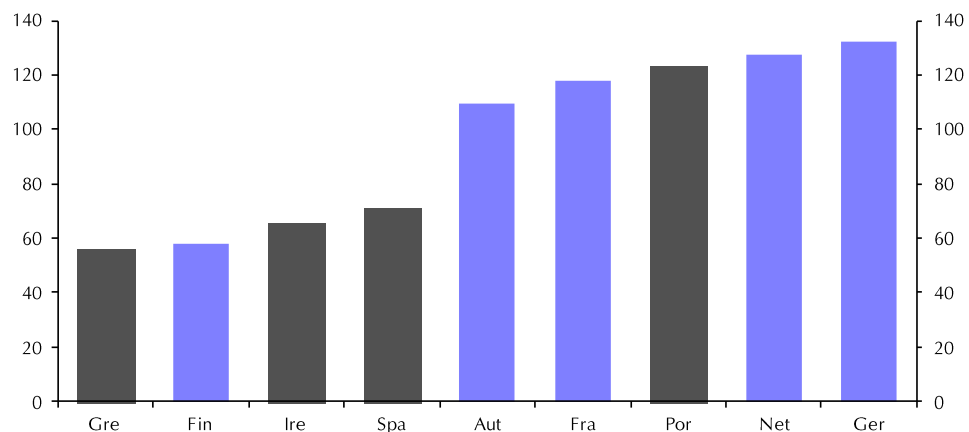
The redenomination of domestic bank loans would mean that their value compared to incomes and domestic bank deposits was initially the same as before, but just as with other nominal amounts, their real value would soon fall.

Ideally, any loans involving a creditor outside the exiting country would also be fully redenominated, since the drachma's depreciation would prompt a large increase in the drachma value of euro debt prompting a loss for the creditors. However, while Greece might try to insist that its private sector's international debts were redenominated into the new national currency, it would be unlikely to achieve this. Accordingly, such debts and

assets would probably remain in euros, implying a sharp rise in the domestic value of both.

On the face of it, this might not actually be much of a problem for households in aggregate. Figure 9 shows that, even in Greece, which is a net international debtor at the aggregate level, households are net international creditors.

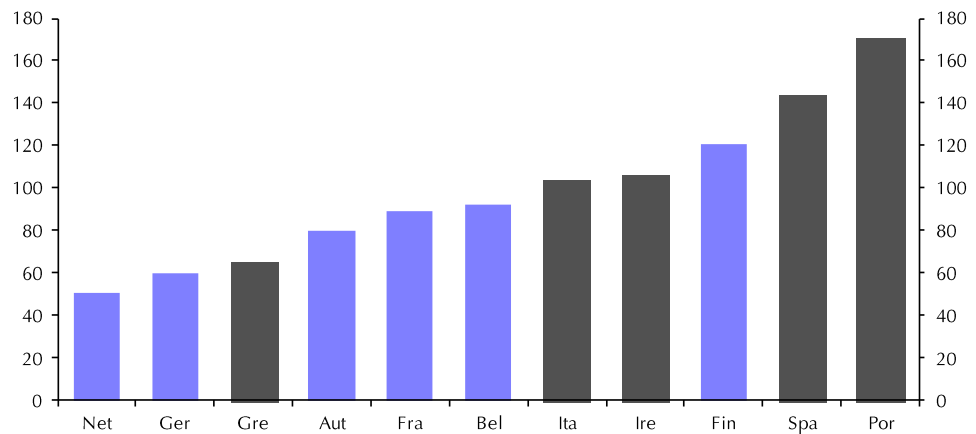
Figure 9: Households' net international assets (% GDP, 2009)



Source: Eurostat, Capital Economics

But within the average, there will be some households which are net debtors and would suffer greatly from a depreciation. Even some of the creditors might struggle, depending on which types of international assets and liabilities they held.

There would be a much bigger effect on firms due to their large net international debts. (See Figure 10.) If, as we suspect, these could not be redenominated, their domestic value would become unmanageable as the new currency depreciated. This, in turn, could prompt mass bankruptcies and job cuts that would seriously damage households' finances.

Figure 10: Firms' net international liabilities (% GDP, 2009)

Source – Eurostat, Capital Economics

Accordingly, the government would need to do all that it could to support firms with large international debts, perhaps by offering some kind of relief on international debt repayments. Given that the government's own debt position was perilous, to the extent that it helped out firms with debt relief it would have to increase the scale of default on its own debt.

Mortgages

Like other domestic bank loans, the value of domestic mortgages would be converted into drachma at the official exchange rate. It would be the same after redenomination compared to wages, prices, assets and other sorts of liability. But their real value would soon fall.

Mortgages taken out in other countries would not be redenominated, implying a sharp rise in their domestic value compared to wages and (notably) to the price of the property on which they were secured. But it is rare for households to take out mortgages in other euro-zone countries to buy property at home because of differences in market characteristics and varying legislation on consumer protection, as well as banks' reluctance to lend to foreigners due to limited access to international credit risk databases and their difficulty in assessing the value of properties abroad.

It is more common for households to have international mortgages on holiday homes. But even including these, the European Commission has

estimated that cross-border mortgages account for less than 1% of the total mortgage market.

Where, for example, a Greek person had taken out a mortgage for a Greek property with a Greek high street branch of a German-owned bank, the loan would almost certainly be converted into drachma at the official conversion rate. The Greek government has regulatory control over such banks.

Property prices

Any pre-existing contracts to transact in property would be redenominated into drachma and post D-Day transactions would normally be quoted and executed in drachma. But what happened to the drachma prices would be the result of economic forces, including market participants' expectations.

Greek property would become more attractive to foreign investors as its foreign currency price fell, at least once investors believed that it did not have much further to fall. If foreign demand was strong enough, some Greek house prices could rise. Moreover, Greeks and non-Greeks might take the view that, out of the euro, Greek economic prospects were much better, thereby justifying higher property prices. On the other hand, lower real wages and the destruction of a good deal of wealth would point in the opposite direction. The overall effect could go either way.

The price of non-Greek properties would increase in drachma terms as the currency depreciated, meaning that Greek owners of property overseas would become better off, assuming that their mortgage had been redenominated into drachma.

Equity prices

The same reasoning would apply to equity prices. Interestingly, when Argentina abandoned the peso's peg to the dollar in 2002, equity prices measured in peso started to rise within a month or two and rose by 200% in the next two years. The devaluation would also cause foreign equity prices to rise in drachma terms.

This would benefit some firms and equity-holding households, causing a shift in relative wealth towards those parties. Given that the largest equity holders would typically be among the richest in the country, this shift might be considered undesirable. If so, the government might consider imposing taxes on equity holdings in order to redistribute wealth.

Pensions

Purely domestic defined benefit pension entitlements, and defined contribution pensions already in payment, would be converted into drachma and, like bank deposits, their initial nominal value would be unchanged. But, as with wages, their real value would fall as prices rose in reaction to the fall of the exchange rate.

The value of defined contribution pension funds, whose payouts depend on the performance of the assets in which they are invested, could be affected either way by euro-zone exit, depending upon what sort of assets the funds were inserted in. Equity and property prices might benefit from exit implying that the value of pensions could rise. With most of households' net international assets held in pension funds, their domestic value would rise sharply because of the direct currency impact. But of course, a deep economic downturn would have negative effects. Overall, the most probable outcome is that some funds would go up and some go down. Again, there would be major redistributive effects that the government might want to offset using taxes.

Recommendations

- Redenominate all contractual nominal values at the official conversion rate of 1-for-1, including all bank deposits and loans with Greek resident financial institutions (including the Greek branches of foreign banks).
- Do not attempt to protect people from the fall in real wages resulting from the devaluation.

- Leave administered prices and market-determined prices to find their own level, according to market forces, although now expressed in drachma.
- Provide relief to firms which had large debts to creditors outside Greece, whose drachma value will have risen considerably.
- Do not offer the same facility for individuals with euro debts to banks abroad.

6 **MANAGING WHILE OTHERS LEAVE THE EURO**

In previous sections, we have analysed in depth the implications for Greece of exiting the euro-zone. However, what will be the impact on the countries that remain in the single currency and what will they need to do to deliver ‘future growth and prosperity’ as others leave? We consider first the economic impact and then the financial.

6.1 Securing economic benefit

The economic impact of a Greek departure on the remaining members of the euro-zone — and, therefore, the appropriate prescription of interventions for them to deliver ‘future growth and prosperity’ — will vary from country to country.

Impact on currency, trade and inflation

With the exit of Greece, we would expect the residual single currency to be stronger — reducing the international competitiveness of the remaining euro-zone members’ exports against those from Greece.

In addition, it is likely that the single currency will eventually appreciate more generally against currencies outside the euro-zone — although this will be dependent on sentiment and expectations in the currency markets, which could mark the currency in the opposite direction if they perceive the departures are foretelling further crises. The scale of the general appreciation may be small, but it may still have implications.

The currency movements will affect exporters in the remaining euro-zone countries by reducing their price competitiveness against suppliers in Greece and those outside the euro-zone.

The appreciation should partially relieve inflationary pressures coming through imports. The effect will vary from country to country depending on respective propensities to consume imports, but is unlikely to be substantial unless more than a few peripheral states leave.

Implications for the surplus countries

For the Northern core countries, with their greater dependency on exports in GDP, any appreciation in the euro will dampen their capacity to sustain economic activity through exports — and will compound their structural challenge of boosting domestic demand.

Fiscal measures are one option to stimulate domestic demand. In some countries, there remains scope for additional public borrowing to fund government spending, investment and/or tax cuts. Finland and Luxembourg both have budget deficits (at 2.0% and 1.0% of GDP respectively) and levels of government debt (48% and 19% of GDP) well within the limits set out in the Maastricht Treaty — but elsewhere increased borrowing would be problematic. Other options are needed.

The second option is to use expansionary monetary policy. There is currently only limited scope for monetary expansion through reductions in interest rates. Moreover, concerns especially in Germany about the consequences of quantitative easing in the euro-zone have left the European Central Bank unable to utilise the range of monetary policy instruments available to their counterparts in the Federal Reserve and the Bank of England. In particular, policymakers in Berlin and elsewhere fear both the potential inflationary effects and the moral hazard that may be created by printing money that will effectively help bail out imprudent indebted countries.

These arguments against quantitative easing will weaken, though, as countries leave the single currency. First, with rates of unemployment continuing to rise across the euro-zone and CPI well below two per cent, there is little to suggest that a well managed programme of quantitative easing would have a sustained significant impact on inflation. Second, the countries that look most likely to leave the euro-zone, like Greece and Portugal, are also the ones that policymakers might have the greatest concerns about moral hazard.

A third option is to loosen business regulations and conduct other structural market reforms to enhance market flexibilities and stimulate demand.

Structural reforms can be implemented to change incentives and boost domestic demand without the government necessarily spending more. Indeed, some types of reform might even save the government money over time. In Germany, reforms need to focus on boosting consumer spending, which might include reducing the restrictions on access to credit.

In addition, to minimise the risk of contagion to other countries that might otherwise wish to remain within the euro, the Northern core may need to accept faster progress towards full fiscal and political union and take other steps to make continued membership more attractive.

The challenges for the deficit countries

For the current account deficit countries, which include France, the departure of ‘weaker’ euro-zone members is particularly challenging.

Like Germany and the other surplus countries, the deficit nations will need to stimulate domestic demand while trying to boost competitiveness via cuts to nominal wages, and advances in labour productivity. But they would find that their ability to boost demand while remaining in the euro would be next to zero.

Accordingly, the departure of the ‘weakest’ deficit countries from the euro-zone may make continued membership of the single currency for some of the other deficit countries much more painful.

Recommendations

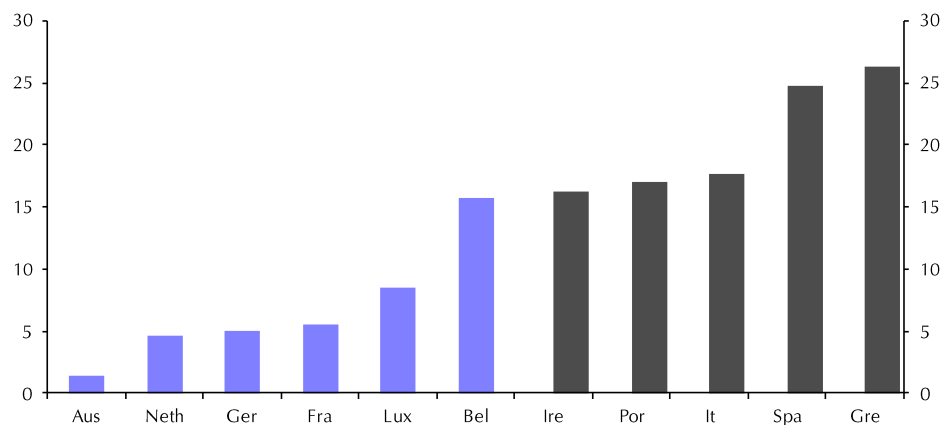
- Finland and Luxembourg both have scope for fiscal expansion in response to any appreciation in the euro; other countries do not.
- As weaker countries leave the euro-zone, quantitative easing becomes more credible — and will be a valuable tool to help stimulate domestic demand.
- Structural market reforms should be used to enhance market flexibilities and stimulate demand in the medium and longer terms.
- Possibly accept faster progress towards full fiscal and political union and take other steps to make continued euro membership more attractive.

6.2 Minimising financial spill-over

The concern for the core countries will be their exposure to devalued and defaulting assets in Greece, and the potential for these to lead to bank runs or credit shortages.

Banks in core economies are heavily exposed to sovereign debt of peripheral countries, albeit to a much lesser extent than the peripheral country banks themselves. For example, German and French banks hold peripheral euro-zone debt of around 5% of their GDP, as shown in Figure 11.

Figure 11: Banks' total exposure to peripheral countries' sovereign debt (end-2010, % of GDP)*



Source – European Banking Authority, Capital Economics.

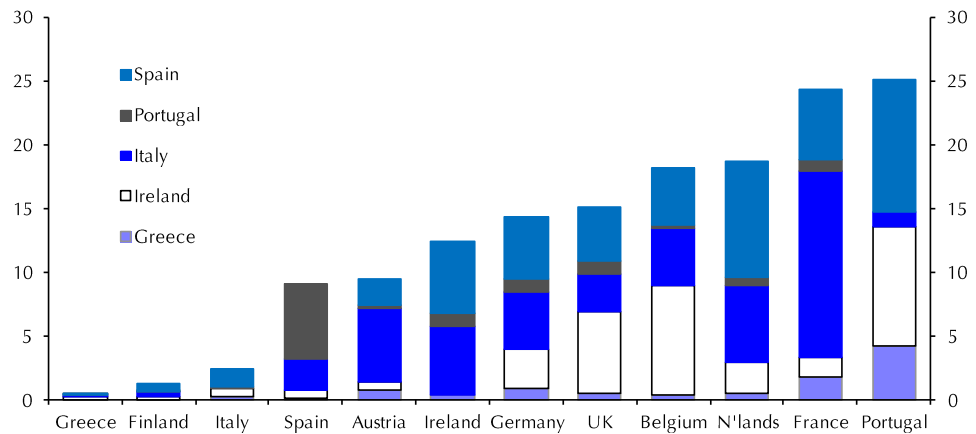
*including exposure to the sovereign of the banking sector concerned.

However, the banking sectors in the Northern core have much larger exposure to the peripheral economies more widely. This consists of loans from German banks to Greek corporations, for example, and German banks' exposure to their own subsidiaries in Greece.

As shown in Figure 12, this wider exposure is significant in some core economies. For example, French banks' exposure to peripheral economies is nearly 25% of GDP (a large part of it to Italy). German and British banks both have exposure of around 15% of GDP. These are large enough amounts to pose a systemic threat. Moreover, while some of the exposure to sovereign debt has been marked to market or is insured through credit

default swaps, this is not generally true of the wider exposure to peripheral economies.

Figure 12: Banks' total cross-border exposure to peripheral countries (end-June 2011, as % of 2011 GDP)



Source – Bank for International Settlements, Capital Economics

The scale of losses on these exposures would depend on how big the euro-zone break-up was and the size of the associated recessions and devaluations.

Governments in the core euro-zone economies would not be insolvent at the time of the euro break-up. As such, they would be in a position to support their banking sectors and therefore avert a full macroeconomic and banking crisis. Nevertheless, the scale of the possible bailouts could lead to further significant pressure on their own debt burdens.

In addition to credit losses, there is also a risk of a liquidity crisis in which the interbank market may freeze both in countries which leave the euro-zone and in those remaining. Central banks would need to stand ready to inject massive amounts of liquidity to offset those effects.

Recommendations

- Governments in core economies should stand ready to recapitalise banks.
- The ECB should stand ready to provide significant liquidity injections.

6.3 The position of the ECB

The departure of one or more euro-zone economies will affect not only the remaining members but also the euro-zone institutions that are left behind. Most notably, there will be various issues for the ECB to address.

The national central bank after euro exit

The Greek Central Bank would need assets in order to function. All national central banks currently have their own balance sheet, including assets such as currency reserves and gold. Following euro exit, these assets would be left with the Greek Central Bank and it would be allowed to do with them what it wished.

Note, though, that if Greece wished to remain an EU member, it would need to continue to hold capital in the ECB, although at a lower rate than when it belonged to the euro-zone. If Greece left the EU, presumably it would be entitled to a refund of its capital subscription, but this is not a large amount.

Loans to exiting members

Since the euro-zone crisis began, national central banks in peripheral euro-zone countries have been borrowing from the ECB. To be eligible for loans, they have posted collateral in the form of government bonds and other assets which the ECB has been willing to accept (mostly ‘covered bonds’, which are bundles of mortgages).

If the Greek government were to create a new currency and devalue, then the Greek Central Bank would not be in a position to repay the ECB at the original value in euros. If the Greek government also defaulted on its bonds, the ECB would find that its collateral (Greek government bonds and covered bonds) was worth only a fraction of the loans it has outstanding to the Greek Central Bank. The ECB would therefore make a loss.

This could cause serious disputes between the defaulting country and other euro members. If they insisted that debts to the ECB be honoured to their

full value in euros, then this would worsen the debt position of the defaulting country and oblige it to make a larger default than it otherwise would on its own obligations. If the defaulting country managed to avoid honouring the debts in full (which we argued in Section 5.3 *should* be the case) then this would crystallise a loss for the ECB which could easily wipe out its capital. This loss would then have to be made good by other member governments, thereby worsening their debt positions.

What to do about Greece's euros

Immediately after euro exit, we have advocated that euro notes and coins continue to circulate in Greece until new national notes and coins are available. This should cause the ECB few qualms. And there wouldn't be anything that it could do about it anyway. As it is, huge amounts of euros circulate freely in Russia, Eastern Europe and elsewhere.

Once Greece had exited the euro-zone and introduced its own currency which became the only legal tender in Greece, however, it would be a different matter. Euro banknotes that had previously been circulating in Greece would presumably find their way back into the remaining euro-zone countries. This would imply an increase in the money supply for the continuing euro-zone which the ECB had not planned. The ECB would therefore probably wish to mop up these extra banknotes.

Recommendations

- The ECB should accept that euros will continue to be used in Greece after euro exit and seek to reduce the surplus of euro currency only after Greece has distributed new national notes and coins
- The ECB should accept its share of any haircut on Greek sovereign debt default.

7

CONCLUSIONS

Our analysis of euro-zone break-up has revealed a series of difficult issues which any exiting country would need to face. But the main point is that none of these difficulties is insurmountable.

Taking account of these issues, the following outlines the best (i.e. least bad) way for a country leaving the euro-zone to manage the process:

1. It will not be possible to be open about preparations to leave for more than a very short period of time. The Finance Minister, Prime Minister, Central Bank Governor and a few other key officials should therefore meet to discuss and plan the exit in secret.
2. Only when planning is complete should they notify partners in the euro-zone, including the European Commission and the ECB, whose cooperation will be essential in minimising the disruption.
3. Other international organisations, such as the IMF and the world's major central banks, should also be warned so that they can stand ready to support the global financial system (for example by injections of large amounts of liquidity). But such warnings can plausibly be only a matter of hours before the announcement.
4. A public announcement should then be made that the changeover to the new currency will take place in a small, specified, number of days' time ('D-Day'). Immediately after this announcement, domestic banks and financial markets should be closed. It would be most practical for the announcement to be made on a Friday evening for implementation on Monday.
5. The closure of the banks should negate the need for other forms of capital controls, which might otherwise be required if the news leaks out to prevent mass withdrawals. More extensive capital controls may still be deemed useful in the immediate wake of the euro exit, in order to limit the size of the drop in the exchange rate, but at this point they

won't be absolutely necessary and may be more trouble than they are worth. Ideally, capital controls should be avoided after D-Day and, if used, should be withdrawn as soon as possible.

6. On D-Day itself, we recommend that the new currency, say the drachma, is introduced at parity with the euro. All domestic wages, prices and other monetary values are therefore to be converted 1:1 from the euro to the drachma.
7. The authorities should allow euro notes and coins to continue to be used for small transactions. But straight after the decision to leave the euro has been announced, they should commission new notes and coins to be produced as soon as possible. Euro notes and coins should cease to be legal tender once the new notes and coins are widely available.
8. On D-Day, or shortly afterwards, domestic banks and financial markets should be reopened. In any event, trade will be taking place in the new currency on international markets. The external value of the drachma would be free to depreciate and indeed it is vital that it should do so. In practice, this is likely to happen straightaway, thereby bringing about an immediate fall of the real exchange rate.
9. The government should redenominate its debt in the new national currency and make clear its intention to renegotiate the terms of this debt. This is likely to involve a substantial default – ideally sufficient to reduce the ratio of debt to GDP to 60%. But the government should also make clear its intention to resume servicing its remaining debt as soon as practically possible.
10. The national central bank of the exiting country should stand ready to inject a huge amount of liquidity into its own banking system, if necessary by quantitative easing. The monetary authorities should also announce their willingness to recapitalise the banks if necessary.
11. In order to restore confidence further, the exiting country should announce immediately a regime of inflation targeting, monitored by a

body of independent experts, adopt a set of tough fiscal rules, outlaw wage indexation, and announce the issue of index-linked government bonds. The government should also continue with structural reforms designed to increase the flexibility of product and labour markets.

12. The authorities should provide as much clarity as possible on the legal issues, including the status of the exiting country's membership of the European Union and the impact on international contracts currently denominated in euros. EU approval would also be needed for any capital controls. All of this would require close cooperation with other EU member states and institutions.

An indicative timetable summarising these points follows at the end of this section.

As for the Northern core countries sticking with the euro:

13. Once one or more countries have left, it would be pointless to try to maintain the fiction that euro membership is permanent or to penalise countries that have left. It is also in the best interests of the Northern core to cooperate.
14. This may well include agreeing to the introduction of an explicit mechanism within the EU Treaty for other countries that might want to leave, thus at least providing clarity on the steps that have to be taken, as well as legitimising what the exiting country has just done.
15. To minimise the risk of contagion to other countries that might otherwise wish to remain within the euro, the Northern core may need to accept faster progress towards full fiscal and political union and take other steps to make continued membership more attractive.
16. Domestic economic policy may also have to adapt. Indeed, policymakers in countries sticking with the euro may have more freedom once they are no longer constrained by the need to set an example for weaker countries that have left. Since the value of the euro would rise, the Northern core would initially suffer from a loss of

domestic demand, although it would enjoy a lower inflation rate. This combination would give it the incentive to undertake measures to boost domestic demand, especially through monetary policy and structural reforms. Such a rebalancing of the economy away from reliance on net exports would be in the interests of the whole of the current membership of the euro-zone, as well as countries outside it.

7.1 Indicative timetable

With D-Day defined as the day when the drachma formally replaces the euro as the national currency of Greece, our indicative recommended timetable is:

- **D-Day minus no more than one month:** Key officials plan the exit in secret. Capital controls implemented immediately and plan accelerated if news leaks out.
- **D-Day minus three days (Friday):** Notification of partners in the euro-zone and other international monetary organisations. Followed shortly afterwards by public announcement that the changeover to the new currency will take place on D-Day. Closure of domestic banks and financial markets.
- **Over the weekend:** Authorities announce new policy regime including inflation targeting, tough fiscal rules and outlawing of wage indexation. Government redenominates its debt and starts negotiations over the terms of this debt. Legal issues clarified as far as possible, with plan announced for resolution of those issues that remain. Commissioning of new notes and coins.
- **D-Day (Monday):** Drachma introduced at parity with the euro. All domestic wages, prices and other monetary values converted 1:1 from the euro to the drachma. Euro notes and coins remain legal tender for small transactions.
- **D-Day or shortly afterwards:** Domestic banks and financial markets reopened. Any other capital controls lifted as soon as practicable. Negotiations concluded on outstanding legal and other issues raised by redenomination.
- **Within 3 to 6 months:** Sufficient notes and coins available in new currency for the euro to cease to be legal tender in the exiting country. Conversion completed.

8 APPENDICES

A1 Lessons from history

There is no perfect historical parallel for the euro-zone, in which a number of independent nation states share a single fiat currency and have a single central bank. There are, however, some examples of countries splitting apart and this leading to the creation of new, independent national currencies: a political and monetary break-up occurring side-by-side. The three most relevant cases are the dissolution of the Austro-Hungarian Empire after 1919, the USSR in 1991 and Czechoslovakia in 1993. Although the forces leading to these splits were completely different from those which threaten the euro-zone today, they still yield useful lessons about what happens when a single currency is split into several new currencies.

Some other historical monetary arrangements which are sometimes cited as relevant to the euro-zone were not, in fact, monetary unions at all, at least not as we would understand the term today. For example, despite their names, neither the Latin Monetary Union (LMU) nor the Scandinavian Currency Union (SCU) had either a single currency or a single central bank. It is true that coins were allowed to circulate freely among all member countries, but this was a natural, and fairly limited, extension of a specie-based currency system in which value is derived from gold or silver (or both, in the case of the LMU). The lessons from the LMU and SCU are therefore similar to those from the breakdown of the Gold Standard.

With these caveats in mind, these five historical examples are described briefly in Table 2 (p102) and based on analysis of these cases we have drawn seven lessons for the euro.

Lesson 1: Break-up of currency union leads to large capital flows

The first and most striking lesson is that there has always been large capital flows in the run-up to the introduction of new currencies, driven primarily by expectations for the future value of the new currencies. These capital flows have been destabilising and difficult to control.

In some cases they have also been affected by regulations such as taxation of new currencies as governments have used the currency conversion as an opportunity to impose a tax on their citizens. For example, after the Austro-Hungarian monetary union was broken up several countries imposed a 'levy' on the old currency before conversion into the new currency – the levy was typically in the form a forced investment in government bonds.

During a currency break-up, some countries experience an outflow of money but others receive an inflow. There was, for example, a 'reverse run' on the Czechoslovakian banks in 1921 as people tried to deposit their funds in the banks in order to avoid a 50% levy which was being imposed on old banknotes before they were converted into the new currency. This led to a sharp drop in interest rates on bank deposits in Czechoslovakia.

Lesson 2: These capital flows can be quite large even before the currency union splits and can contribute to its break-up

In late 1992 there was a flood of capital to Czech commercial banks from Slovak banks within Czechoslovakia not only before a currency division had been announced, but before it had even been agreed. This occurred because Czechoslovak citizens anticipated that the currency would be split once it had become clear that the country would be divided into two independent nation states, following a referendum in September 1992. These spontaneous capital flows helped to bring about a split in the currency because the central bank in the Czech part of the country found it increasingly difficult to recycle this capital back to Slovak banks.

As with all examples of currency speculation, it was not only savings which crossed borders. Traders from the Czech part of the country delayed payments to Slovak counterparts, anticipating devaluation of a new Slovak currency, and Slovakian businesses accelerated their payments to Czech counterparts.

This is clearly something which could occur within the euro-zone as people increasingly move their savings from peripheral countries, such as Greece,

to core economies, such as Germany, and this could also contribute to pressures for an eventual break-up of the euro.

Lesson 3: The authorities usually impose strict capital controls and sometimes border controls around the time of currency conversion

Given the size of capital flows generated by currency break-ups, it is perhaps not surprising that capital controls have been introduced in nearly all cases. In Austria in 1921, for example, capital controls were imposed prior to the introduction of the Austrian crown to restrict capital inflows. In addition, restrictions were imposed on the bank accounts of Austrian citizens (*'inlands'*) but not on bank accounts of foreigners based in Austria (*'auslands'*). The reason for this differentiation was that Austrian citizens were required to convert their savings into the new Austrian currency, whereas foreigners' bank accounts were still freely convertible. Consequently, a dual exchange rate developed, whereby one pound sterling was worth 22,000 *inland* crowns but only 11,000 *ausland* crowns.

A similar situation could potentially arise in the euro-zone if, for example, the bank accounts of German citizens in Greece were to be exempt from a forced conversion of Greeks' euros into drachma.

During the split of the monetary union in Czechoslovakia, capital and border controls were imposed between 4th and 7th February 1993 in order to prevent people moving funds from the Slovak to the Czech part of the country. A limit was imposed on the amount of cash which individuals could convert (CSK 4,000, which was less than one month's average salary). Businesses were exempt from this limit. After the new currency was introduced, old banknotes were physically stamped but they continued to circulate for some time.

This kind of issue could also arise if the euro is broken up. There would presumably be a large inflow of capital into Germany, but neither the Greek nor the German government would want to permit unlimited euro bank accounts held by Greek citizens to be converted into new deutsche marks.

Lesson 4: Fraud can be a major problem

There have usually been major concerns about fraud before the break-up of monetary unions. The physically stamped currencies in some cases proved easy to counterfeit (e.g. Austro-Hungary in 1921, Czechoslovakia in 1993). Historians have estimated that the majority of Austro-Hungarian currency converted into the new Hungarian and Romanian currencies in the early 1920s had originated from beyond the borders of these countries, and was not officially eligible for conversion in those jurisdictions.

In some cases there have been difficulties in printing good quality banknotes and this has encouraged countries to initially introduce an interim currency or “coupon” – this occurred in Lithuania for example, where the initial plan to re-open its own mint was abandoned due to concerns about the quality of banknotes.

Lesson 5: The division of the assets of the central bank is likely to be controversial

When a currency union is disbanded the assets and liabilities of the central bank need to be split between the successor states and the new central banks will need some foreign assets to back their currencies.

There was a long negotiation over how to divide up the assets of the Austro-Hungarian Bank (central bank) when it was liquidated. Eventually, the gold reserves were split according to a formula based on population size and the size of the narrow money supply (banknotes) in each of the five successor countries. The Austro-Hungarian Bank also held some commercial assets, notably mortgages, which were distributed to the successor states in which the property (collateral) was located. It also had some shareholders, who were repaid from the residual assets of the bank.

In the case of Czechoslovakia it was agreed to divide the assets of the federal republic in the ratio of two to one, approximately in line with population sizes. However, there was a dispute over the division of some gold in reserves stored in Prague.

When the Baltic Republics established their currencies after the collapse of the rouble zone, they were able to use gold which had been held in United Kingdom, France, the Federal Reserve Bank and the Bank for International Settlements since before the Second World War to back their new currencies. (In the Estonian case, the gold was not delivered until after the kroon was issued. As an interim measure the central bank used state owned forests as collateral to back its currency.)

There could be similar issues with respect to the ECB.

Lesson 6: Monetary unions have in the past broken up because of lack of sufficient monetary or fiscal discipline in some constituent countries

The rouble zone is an extreme example of what happens to a monetary union in the complete absence of coordination or discipline over macroeconomic policy. During the first few months of the rouble-zone, in 1991 and early 1992, each of the fifteen central banks was creating credits for their respective governments and enterprise sectors. No central bank had an incentive to control this money creation in the absence of an overall system. This led to uncontrolled inflation.

Later in 1992, the Central Bank of Russia (CBR) cut back on the supply of rouble banknotes to other members of the rouble zone, and in June 1992 it ended the automatic clearing of rouble bank deposits from banks in other republics to Russian banks. The growing shortage of banknotes forced other countries to introduce their own surrogate currencies, which were often simple coupons and which circulated alongside the rouble. These formed the basis of fully-fledged currencies. In late 1992 the authorities hugely expanded credit in Russia itself; this prompted many other countries within the rouble zone to accelerate plans to introduce their own currencies.

Greece is one of many countries which has in the past struggled to meet the criteria to join a monetary union and has then dropped out because it failed to maintain the required fiscal discipline. In 1867, two years after the Latin Monetary Union (LMU) was formed, the Greek government passed a *Law on Currency* in which it made a commitment to join the LMU. However,

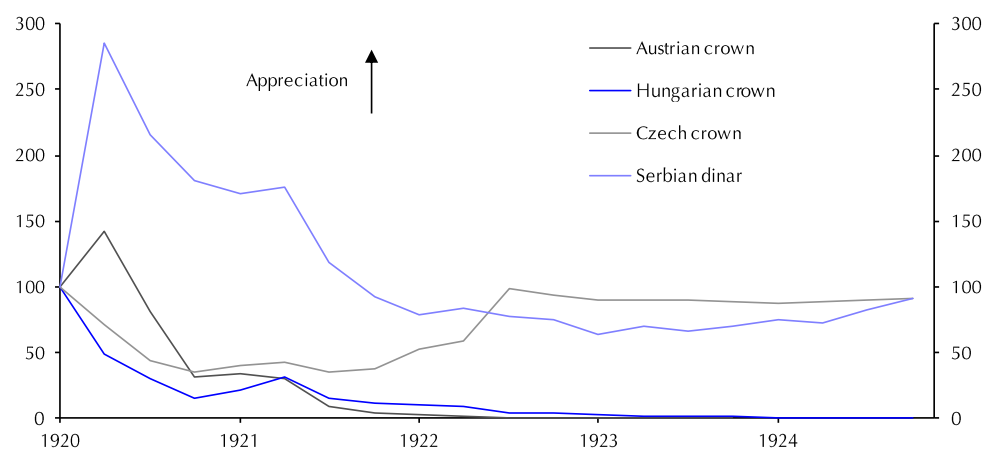
until 1885 Greece could not achieve convertibility of the drachma because the government ran excessive fiscal deficits, funded by printing ‘fiat’ money. When Greece finally joined the LMU in January 1885, it lasted only nine months because there was a huge flight from the drachma into harder currencies.

Lesson 7: The fate of successor currencies may vary greatly

The final lesson is that, it is quite evident from history that successor currencies from within a single currency area may have very different fates after the break-up. For example, after leaving the rouble zone some currencies were strong, including the Estonian kroon and those currencies of the other Baltic Republics, all of which were pegged to western currencies. Many others suffered severe inflations and devaluations, and in some cases were quickly replaced in further currency conversions. For example, the Ukrainian coupon was introduced initially to supplement the USSR rouble within the rouble zone. It was replaced by the karbovanets in 1992 but this was in turn supplanted by the hryvnia in 1996, following a hyperinflation.

Similarly, after the break-up of the Austro-Hungarian currency, Austria and Hungary both experienced hyperinflation whereas Czechoslovakia experienced deflation and currency appreciation. (See Figure 13.)

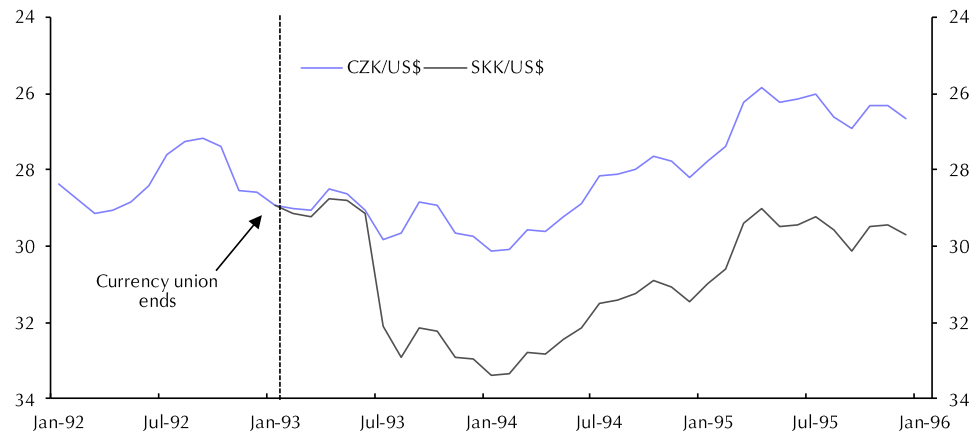
Figure 13: Legacy exchange rates of the Austro-Hungarian Empire (Jan 1920 = 100)



Source: Peter Garber and Michael Spencer, http://www.princeton.edu/~ies/IES_Essays/E191.pdf

Finally, the Slovak crown depreciated by over 10% soon after it was introduced in February 1993. It was worth less than the Czech crown for most of its life as an independent currency before Slovakia joined the euro-zone in 2009. (See Figure 14).

Figure 14: The Czech and Slovak koruna



Source: Thomson Datastream

Table 2: Historical currency unions

Name	Dates	Participating countries	Comments
Austro-Hungarian Empire	1878-1919	Austria and Hungary plus minority nationalities within the Empire	The Austro-Hungarian monetary union had a single currency until the end of the First World War. The Austro-Hungarian Bank was created in 1878 and had exclusive rights to create banknotes, and the crown circulated through Austria, Hungary and other parts of the Empire. During WW1 the area experienced very high inflation as the central bank was used to finance government spending and monetise the public debt. As the Empire dissolved in 1919, five countries made plans for their own currencies: the Kingdom of Serbs, Croats and Slovenes; Czechoslovakia; Austria, Romania; and Hungary. New currencies were duly introduced in 1922-23. The main approach was to physically stamp the crown banknotes and then convert them into the new currencies after, in some cases, levying a forced loan for the new government.
The rouble zone	1991-92	Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Russia Tajikistan, Turkmenistan, Ukraine,	In 1991 the central bank of the USSR, Gosbank, was replaced by fifteen central banks in each of the former soviet republics but the rouble was maintained as the common currency. This system was supported by the international community and the IMF, in an effort to avoid a disorderly collapse of the USSR. Each of the central banks assumed the right to issue rouble credits, although only Russia had the right to print banknotes. But as soon as 1992 the Baltic states and Ukraine introduced their own currencies. In July 1993 Russia announced that it was introducing a new rouble, effectively forcing the other republics to abandon the USSR rouble. Between 1992 and 1995 all its original members left the rouble zone.
Czech and Slovak Currency Union	1993		Czechoslovakia split as a political entity on 1 st January 1993 but the intention was to maintain a single currency for at least six months after the political split. However, there was a flood of capital towards the Czech part of the country even before the country formally split. The governments of the two countries concluded that it was not possible to continue with a single currency and agreement was reached, at secret talks, on a date to replace the Czechoslovak crown with separate Czech and Slovak currencies. This took place only six weeks after the political split, in February 1993.
Latin Monetary Union	1865-1927	France, Belgium, Italy, the Vatican, Greece	The LMU was an alternative to the Gold Standard. It was a bimetallic system in which the different currencies of its members were backed by both silver and gold and the ratio of the price of gold and silver was fixed (at 15.5 to 1). Although some coins were legal tender in any member of the LMU, there was no common banknote or central bank equivalent to the euro and ECB. The LMU broke down largely because of excessive money creation by the Papal government, and large fiscal deficits in Italy. It had been defunct for many years before it was formally disbanded in 1927.
Scandinavian Currency Union	1875-1914	Norway, Denmark, Sweden	Under the SCU, each country pegged its currency to gold, which guaranteed fixed bilateral exchange rates. Common coins circulated throughout the area from the beginning. Common banknotes circulated only from 1901. The monetary union was underpinned by a political union between Sweden and Norway, which lasted from 1814 to 1905.

Sources – Various; see bibliography

A2

What would be the optimum re-configuration of the euro-zone?

This Appendix discusses in more detail the best form for the euro-zone to take — if *any* — following some sort of break-up involving the departure of one or more countries, as well as the different paths of transition. In other words, what form should the break-up take, how should it happen, and what should be left in place of the euro?

What are the possible configurations?

There are various possible configurations for the euro-zone following some form of break-up. At the extreme, all countries would return to individual national currencies, leaving no currency union left at all. At the other end of the spectrum, the departure of just one or two countries would leave the vast bulk of the euro-zone intact. Alternatively, the euro-zone might split into two or more currency unions, each one including countries of similar economic characteristics. One often discussed possible formation is a split into a Northern or ‘core’ euro-zone and a Southern or ‘peripheral’ euro-zone.

What is the “optimum” reconfiguration of the euro-zone?

Which of these configurations (and any others) might be considered to be the ‘best’ in overall terms is, of course, much more than just an economic issue. However, here we will concern ourselves solely with the economic considerations and, in that respect, there are three main considerations.

First, which new arrangement would best serve the interests of the current members of the euro-zone and give what remains of the currency union the best chance of survival and prosperity? Second, what are the likely economic and financial consequences of the transition to the new arrangement? And third, which arrangement might be best for those countries already outside the euro. These three questions, of course, might lead to conflicting conclusions. We look at each below.

Which new configuration would best serve member countries and promote prosperity?

The answer to this question rests on the extent to which different member countries are economically compatible with each other and would therefore benefit from remaining in some form of currency union. A more formal way of putting this is to ask which countries, if any, might constitute something close to an ‘optimal currency area’ or at least a *feasible* currency area?

Table 3 below helps to give some indication of this by showing the behaviour of key economic variables – GDP growth, inflation, unemployment and the current account - for the main member states since the birth of the euro in 1999, as well as the most recent values (which mainly relate to Q3 2011). Note that we have included average data from 1999 even for recently joined members like Slovakia and Slovenia in order to illustrate their economic compatibility over a reasonable time period.

As the table shows, contrary to hopes and expectations at the time of EMU’s inception, there has generally been a wide variation in economic performance among current member states during the euro’s lifetime. Average GDP growth, for example, has ranged from an anaemic 0.7% in Italy to an impressive 3.7% in Ireland, while average inflation, unemployment and current account positions have also varied widely. Those variations have generally widened over time rather than narrowed, as indicated by the differences between the most recent values.

Table 3: Key economic variables in EMU

Member State	GDP In EMU (%y/y)	GDP Latest (% y/y)	Inflation in EMU (%y/y)	Inflation Latest (%y/y)	Unemp in EMU (%)	Unemp Latest (%)	Curr Ac. In EMU (%of GDP)	Cur Ac. Latest (% of GDP)
Germany	1.2	2.6	1.5	2.8	8.8	5.5	3.5	4.7
France	1.5	1.6	1.8	2.5	9.0	9.8	0.0	-2.4
Italy	0.7	1.5	2.2	3.7	8.2	8.5	-1.5	-1.9
Spain	2.6	0.8	2.8	2.9	11.9	22.8	-5.7	-3.0
Netherlands	1.9	1.3	2.2	2.8	3.8	4.2	5.3	7.6
Belgium	1.8	1.1	2.1	3.4	7.8	6.8	2.7	1.0
Austria	1.9	2.8	1.8	3.9	4.3	3.8	1.8	2.6
Greece	2.4	-5.5	3.3	2.9	10.1	16.6	-9.1	-10.5
Ireland	3.7	-0.2	2.5	1.3	6.1	14.3	-1.9	-0.7
Finland	2.4	2.7	1.8	3.2	8.5	6.8	5.4	8.4
Portugal	1.2	-1.7	2.5	3.6	7.6	12.7	-9.6	-7.3
Slovakia	4.2	2.9	5.3	4.8	15.5	13.6	-6.1	-3.5
Luxembourg	3.7	1.9	2.6	3.8	3.8	4.6	9.4	7.8
Slovenia	3.1	-0.5	4.7	2.9	6.2	7.9	-2.8	-1.5

Source: Eurostat, Capital Economics

Table 4: Correlations between annual GDP growth rates since 1999

	Ger	Fra	It	Spa	Neth	Bel	Aus	Gre	Ire	Fin	Por	Slovak	Lux	Sloven	Mal	Cy
Ger	1															
Fra	0.82	1														
Ita	0.86	0.95	1													
Spa	0.62	0.87	0.84	1												
Neth	0.85	0.89	0.84	0.82	1											
Belg	0.84	0.92	0.88	0.75	0.88	1										
Aus	0.90	0.89	0.87	0.76	0.90	0.94	1									
Gre	0.13	0.42	0.46	0.75	0.36	0.27	0.27	1								
Ire	0.55	0.85	0.72	0.89	0.73	0.75	0.71	0.65	1							
Fin	0.87	0.75	0.90	0.82	0.88	0.87	0.91	0.36	0.72	1						
Por	0.63	0.80	0.78	0.74	0.80	0.72	0.69	0.32	0.70	0.74	1					
Slovak	0.54	0.36	0.44	0.45	0.48	0.37	0.51	0.50	0.26	0.63	0.27	1				
Lux	0.69	0.86	0.80	0.84	0.82	0.81	0.82	0.43	0.76	0.83	0.85	0.38	1			
Sloven	0.45	0.67	0.65	0.85	0.63	0.64	0.60	0.70	0.76	0.72	0.65	0.41	0.38	1		
Mal	0.59	0.74	0.69	0.85	0.83	0.65	0.68	0.57	0.66	0.77	0.72	0.48	0.78	0.70	1	
Cyp	0.71	0.78	0.85	0.79	0.63	0.69	0.76	0.56	0.74	0.82	0.47	0.55	0.68	0.62	0.61	1

Source: Eurostat, Capital Economics

Table 4 expands on this by showing the correlations between the annual rates of GDP growth between different member states since 1999. While there are some close correlations – for example between Germany and Austria or France and Belgium (marked in blue) – there are some low ones too – Greece with virtually anywhere, or Ireland with Portugal.

One key factor behind these divergent economic performances has, of course, been the fundamental differences in competitiveness between different member states.

All of this has contributed, in turn, to the divergence in the fiscal positions of member states seen in the last few years. Table 5 (p113) illustrates this in the form of a fiscal heat map, showing the key fiscal indicators for the major euro-zone economies.

The table confirms that the uncompetitive, slow growing economies of the South are generally in a poor fiscal position (as indicated by the preponderance of red), while the more competitive Northern ‘core’ economies are generally in a healthier position (amber and green).

A Northern euro-zone

Needless to say, all of this has contributed to the widespread conclusion that, in its current full form, the euro-zone is a long way from being an optimal currency area. But that does not mean that some countries could not, and should not, remain together in some form of currency union following a euro-zone break-up.

Most obviously, it seems clear that at least some of the other core Northern economies like Austria and the Netherlands could remain in a union with Germany. The tables show that their economic and fiscal performance in EMU has been pretty similar to that of Germany. What’s more, they probably at least partly meet the textbook criteria often advanced for an optimal currency area – namely, labour and capital mobility, wage and price flexibility. It also seems feasible for those countries to undertake and sustain the degree of fiscal and political union required for a currency union to function properly and not yet seen across the whole euro-zone.

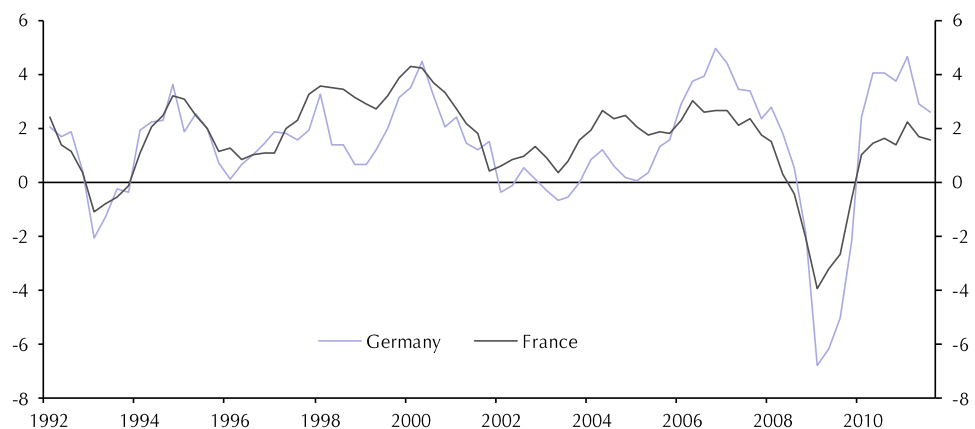
Finland probably looks weaker on some of these criteria – if nothing else, language might be a bigger barrier to labour mobility – but its economic performance has perhaps also been similar enough to suggest that it too could survive and prosper in a German-led Northern currency union. It has had an 87% growth correlation with Germany within the euro-zone and is one of only three euro-zone economies with an AAA credit rating from S&P.

Belgium's position is also less clear. It has a high growth correlation with other Northern economies, but higher debt levels and a weak banking system. Moreover, its political system is extremely weak and there are even doubts about whether it can survive as a country. Indeed, in some ways it can be seen as the 'Greece of the North'. However, provided it tackles these problems and is prepared to engage in the required political and fiscal union, its close relationship with its neighbouring economies suggests that it could participate in a Northern currency union. Overall, we would rank the countries most suited to joining Germany in a Northern euro as follows: 1. The Netherlands; 2. Austria; 3. Finland; 4. Belgium.

Where does France fit in?

Perhaps the most intriguing issue in all of this is the potential position of France. France is traditionally seen as Germany's close economic ally and partner, and Figure 15 shows that the two economies have tended to move quite closely together over time and their correlations are high.

Figure 15: German & French real GDP growth (% year on year)



Source – Thomson Datastream

However, France's recent economic and fiscal performance has in some ways more closely resembled that of some of the peripheral economies. It has a current account deficit as opposed to Germany's surplus and its primary budget deficit is close to that of Greece. It also has strong banking and financial links to Greece and the other peripheral economies.

Moreover, within a Northern euro-zone, France would probably need to take decisive action to improve its competitiveness relative to Germany and some of the other members, implying a possible need for deflation.

At the same time, France's competitiveness compared to other areas would be further damaged if, as seems likely, a Northern euro was stronger against other currencies than is the current euro. There might be parallels in all of this with France's decision to remain in the Gold Standard in the 1930s, which delayed her economic recovery relative to competitors – like the UK and Scandinavia – which left the system earlier.

Given these points, there may certainly be some economic case for France to stay out of Northern euro. Instead, there may be attractions for it in joining – and indeed, *leading* – a Southern euro, if one existed. However, the political and social obstacles to breaking away from Germany may prove to be insurmountable.

Should the peripheral economies stay together?

This leads to the question of what should happen to the peripheral economies. On the assumption that some or all of them should leave the euro-zone, should they form their own currency union (perhaps with France) or should they all return to their own national currencies?

The advantage of the former, of course, is that they would continue to benefit from some of the theoretical benefits of membership of a currency union, such as reduced exchange rate uncertainty. For countries with strong trade links, like Portugal and Spain, that might be an attractive proposition. At the same time, the existence of a Southern currency bloc would provide deeper and hence more liquid financial markets, e.g. bond markets, for

those countries and hence reduce their sovereign borrowing costs and firms' cost of capital.

This configuration might also have constitutional appeal. Both the Southern and the Northern euro blocs could be presented as legitimate successors to the old euro — albeit with different and smaller memberships. After all, this is not entirely different from the two-speed monetary union that most originally envisaged in the 1990s. This approach would make it easier to maintain continuity within the current institutional framework, especially if both currencies are legitimised by treaty amendments and are still managed by the ECB (with different interest rates for the two different currencies). An additional advantage that might appeal to some countries is that a division of the euro into two would be a sort of half-way house between staying in the current euro and abandoning it completely.

However, the previous tables underline that, while the Southern and peripheral economies are regularly lumped together because of their fiscal problems, they are actually different economies with distinct and disparate characteristics.

We have already noted, for example, that Ireland and Italy have been the fastest and slowest growing countries in the euro-zone. Their GDP growth rates have a fairly low correlation of just 0.72. Even Portugal and Spain, despite their close proximity and trade links, have performed quite differently in EMU, with a correlation of just 0.74.

Meanwhile, there has also been a wide variation in other economic variables such as current account positions, inflation and unemployment between the different countries of the region. And while some countries like Greece and Ireland share some characteristics, their weak trade links suggest that they would gain little from maintaining a common currency with each other.

Given this, we do not believe that — starting with a 'blank sheet of paper' — it would be economically optimal for the peripheral economies to be together in some form of currency union. The benefits of having their own currencies and being able to set their own policies to suit their diverse

economies would probably outweigh the benefits of exchange rate stability with each other.

The costs of transition

The reality is, though, that we are not starting with a blank piece of paper. As such, the optimum re-configuration of the euro-zone will depend not just on what would ultimately be the ‘best’ arrangement on an *ex-post* basis but also on what economic and financial effects would stem from the *transition* to that position from the current one.

Generally speaking, the bigger the degree of change from the current arrangement, the greater the likely damage and disruption associated with the transition. This might mean that it would be better for the euro-zone to undergo only modest changes, even if that meant what was left did not necessarily constitute an optimal currency area.

In practical terms, this might mean countries such as Italy and Spain should remain within the euro-zone on the basis that the damage — both to themselves and the rest of the area — likely to be caused by the process of their departure would outweigh the benefits both to them and to the rest of the currency union of their eventual absence.

This is largely a question of timescale, however. While in the short to medium term, the best option would no doubt be for any changes to be minimal, over the longer term the optimal course must be to move to something as close as possible to an optimal currency union. Indeed, even in the short to medium term, a less than optimal configuration might be damaging if it sustains speculation that further changes in the currency union are necessary and likely at some point in the future. Nonetheless, it is clear that any changes to the euro-zone will need to be managed carefully to minimise the damage during transition and maximise the chances of survival of the remaining currency union.

A two step process?

The departure of the stronger core from the euro may seem irrelevant given our previous assertion that the other economies should not remain together in a Southern currency union. However, there may be merits in a two-step process in which the first step is the departure of the core economies to form a Northern euro, leaving behind a Southern euro. The second step would then be the departure over time, if necessary, of remaining economies from this Southern union and the re-establishment of national currencies.

What would be best for the existing ‘outs’?

A third consideration is which configuration would be best for countries currently outside the euro-zone, such as the UK, Sweden, Denmark, Norway and Switzerland. Given the importance of trade and relations with those other countries, this could help to determine whether any new configuration would be sustainable and successful.

Once again, the current ‘outs’ would presumably be interested in both the new configuration of the euro-zone and the impact on them of the transition to that new configuration. In terms of the former, they would presumably hope that the new arrangement would facilitate strong growth and free trade with outsiders. They may also hope that their currencies would be competitive against what remains of the euro or any new single currency.

In these respects, the ‘outs’ might prefer a fairly comprehensive break-up of the euro-zone, given the best chance that both the leavers and remaining countries would in time start to expand strongly. They may also hope that a bigger break-up would increase the amount of trade done by ex-member states with other countries. A bigger break-up may also help to improve the competitiveness of the ‘outs’ by allowing their currencies to fall against the biggest members of the current euro-zone. Switzerland, for example, would benefit if the franc fell back sharply against an appreciating Northern euro consisting of Germany and other current ‘core’ economies.

Against that, the economic and financial knock-on effects on the ‘outs’ would presumably be bigger in the case of a more comprehensive break-up. Once again, though, this is a matter of timescale. While in the short term a bigger break-up may have a more disruptive effect on the ‘outs’, over the long-run it would be more positive if it allowed current euro-zone economies to grow more quickly.

Conclusions

The optimal re-configuration of the euro-zone would be a move to a smaller currency union incorporating the ‘core’ Northern economies of Germany, Austria, the Netherlands, Finland, and Belgium. The economic case for France joining this group is not very strong, but political considerations might deem that it should do so anyway.

We do not subscribe to the view that the peripheral economies should remain or join together in a Southern currency union. Their diversity suggests that they should all return to their own national currencies, though efforts should clearly be maximised to limit the economic disruption associated with the transition to this position. A two step process, involving first the departure of the core economies into a Northern euro, and then a gradual return of the Southern economies to national currencies, may have some merits.

Table 5: Euro-zone fiscal sustainability heat map

	Budget deficit (2010, % of GDP)		EC's suggested ann. fiscal tightening (2010-13, % of GDP)	Government debt (2010, % of GDP)		Gov't debt held abroad (% of total gov't debt)	Total external debt (Q1 2011, % of GDP)	Ave. debt maturity (years)	Debt maturing in 2012 and 2013 (% of GDP)	Credit rating (S&P)
	Overall	Primary		Gross	Net					
	Greece	10.6	5.1	3.5(*10-11)	144.9	115.5	60	175	6.9	31
Portugal	9.8	6.8	1.25	93.3	69.6	56	222	5.8	21	BB
Ireland	31.3	28.7	2.0	94.9	54.9	63	316	6.2	8w	BBB+
Belgium	4.1	0.9	0.75	96.2	80.3	63	261	6.7	27	AA
Spain	9.3	7.8	1.75	61.0	40.3	47	161	6.1	22	A
Italy	4.6	0.3	0.5	118.4	98.6	44	117	7.0	32	BBB+
France	7.1	4.8	1.25	82.3	58.9	62	193	7.1	21	AA+
Netherlands	5.1	3.7	0.75	62.9	34.4	61	301	6.2	16	AAA
Germany	4.3	2.2	0.5	83.2	52.2	50	152	6.2	15	AAA
Austria	4.4	2.3	0.75	71.8	44.0	80	212	7.0	13	AA+
Finland	2.5	3.0	N/A	48.3	-64.5	84	195	4.9	19	AAA
Criteria										
<i>Red</i>	>8	>5	>1	>80	>80	>60	>200	<6	>30	<A+
<i>Amber</i>	3-8	3-5	0.5-1	60-80	50-80	50-60	170-200	6-7	30-20	AA+ - A+
<i>Green</i>	<3	<3	<0.5	<60	<50	<50	<170	>7	<20	>AA+

Source: Thomson Datastream, World Bank, Bloomberg, OECD, Capital Economics

A3 **Could a country leave the euro, devalue and re-join?**

The general perception is that a euro-zone member state suffering from a lack of competitiveness and associated economic weaknesses within the single currency has two options – either it can remain within the euro and undertake a so-called ‘internal devaluation’ in order to restore its competitiveness (i.e. cut relative costs and prices); or it can leave the euro for good and re-introduce a national currency which then depreciates.

A possible third option, however, might be for a country to leave the euro temporarily and then rejoin at a more competitive exchange rate. In theory, this option would have the advantage of allowing the country to avoid the costs associated with long and painful internal devaluation and yet still enjoy — after some interruption at least — the benefits of membership of a currency union (such as reduced exchange rate uncertainty). In reality, this option divides into two different cases.

First, the exiting country spends a prolonged period outside the euro to ‘put its house in order’ thus embedding a lower real exchange rate, a low inflation culture and conservative fiscal habits. Then, after a suitable period of demonstrating that the changes are for real, lasting for some years, it rejoins the euro.

Second, the exiting country spends a matter of hours, days or weeks outside the euro and it is known from the start that it will rejoin. This would be a clever trick which effectively keeps the country tied to the euro-zone but which nevertheless allows a more or less instantaneous improvement in competitiveness, as though it were not tied to the euro.

The first of these options is certainly technically feasible. People do sometimes withdraw from clubs and then rejoin. Sometimes they even divorce and remarry the same partner; firms can demerge and then remerge.

But the barriers to such a thing happening in the case of the euro are political rather than technical. Would the exiting country’s electorate want

such an outcome after everything they will have gone through? Would the rest of the euro members welcome back the prodigal son? In any case, even if such an outcome were on the cards, it does not really constitute a separate case from the one considered at length in this paper, namely how a country can successfully and relatively painlessly exit the euro. After all, in order to be able successfully to rejoin, it has first successfully to exit and to manage through the ensuing difficulties. Whether it can, would and should want to rejoin the euro is a subject which we can safely leave to one side.

The second option is not like this. It amounts to the idea that a country may, by being clever, have its cake and eat it. This option needs to be examined carefully.

There are, of course, many historical examples of countries devaluing/revaluing within ‘fixed’ exchange rate systems. But these have simply required the setting of a new rate or range between the currency involved and the currency or basket to which it is pegged or attached. This would not be possible in the euro-zone because countries no longer have a national currency against the euro which could be adjusted.

Accordingly, a member country seeking to devalue would need to leave the currency union altogether and reintroduce a national currency. It would then have to remain outside the euro for long enough to allow its currency to fall — altering the level of wages and prices in its economy relative to those in the rest of the euro-zone — before then re-joining the currency union at this lower level.

This would mean that the country would suffer the cost and disruption of bringing in a new currency (of which the printing and introduction of a new currency would be a small part) twice in a relatively short period.

There might be a way around the printing costs. First, a country might be able temporarily to leave the euro without actually printing a new national currency, if it can manage for a period without using physical notes and coins. In a world in which electronic and card payments account for a high share of transactions, this might be possible for a while.

Whether or not the exiting country prints new money, the real problem with this idea is one of credibility and economic compatibility. Suppose that this manoeuvre works, what is to stop a country from trying it again if it subsequently again becomes uncompetitive? Indeed, how would it, and the markets, know after the initial drop that the devaluation it secured while it was outside the euro was adequate to prevent it needing to do the same thing again? And if it succeeded what would stop other countries from doing the same thing, or stop markets from believing that other countries would do the same thing?

In short, far from solving the euro problem, recourse to such a clever ‘technical’ ruse would quickly cause the monetary union to become little more than a fixed exchange rate bloc, with all the attendant difficulties that such blocs experience, and then probably soon disintegrate. Partly for this reason, the other members of the euro-zone would be highly unlikely to countenance such an arrangement.

A second possible ‘clever’ solution is for the country to keep the euro as its currency, but to undertake a one-off adjustment to its domestic level of prices and wages. This would, in effect, be an immediate ‘internal devaluation’. It would have the same effect as a currency depreciation in that it would reduce domestic wages and prices compared to those elsewhere in the euro-zone and in other areas and hence improve the country’s competitiveness.

In essence, the government would issue a decree (enforced by law) that all domestic monetary amounts were to be reduced by a certain percentage, 10%, 20%, 30%, or whatever. Wages and prices would be reduced by this percentage. But if wealth levels, and particularly bank deposits, were unchanged, then the normal forces of supply and demand would come into play and start to bid them up again. Most importantly, because prices and wages had been reduced in an artificial way, they would not be believed in, and consequently there would be a natural tendency for them to bounce back to where they had been. Governments could only prevent this through the maintenance of draconian wage and price controls which would throttle the normal workings of the market economy and cause untold economic damage.

Alternatively, a government could try to reduce all nominal values by the said percentage, thereby lopping 10%, 20%, 30% or whatever off everybody's bank accounts, pension funds and mortgage obligations, as well as cutting prices and wages by fiat. But in the process some hideous problems would be created. What about the value of wealth that is market determined rather than contractual, such as houses or equities? There would be some huge redistributions (and dislocations) as part of the economy's nominal values were reduced, and others weren't. And suppose that prices and wages still bounced back to where they had been, while bank deposits, pensions and so on were reduced by the full percentage of the internal devaluation. The result would be massively deflationary of real demand and would intensify the economic crisis in the country.

And where exactly would the cancelled 10%, 20%, 30% or whatever of people's bank deposits, pensions etc go? To the banks? Or to the government? And what would all this do to the state of confidence in the system, the sanctity of contracts, the rule of law etc?

Simply to explore the workings of how this proposal might operate is to reveal its impracticality. But it also reveals the characteristics of internal and external devaluations which makes them work. In the case of internal devaluation, it is the fact that new (lower) prices and wages are ground out by market forces and therefore have credibility – and durability. In the case of external devaluation it is again that prices and wages are determined in the market place in the normal way, except that one sub-set of the aggregate price level rises relative as the rest. This exercise simply serves to illustrate the plodding ineluctability of the one, and the dazzling (but dangerous) magic, of the other means of adjustment. But these are the only methods of adjustment on offer. There is no other, 'clever' third way.

Conclusions

The option of a country leaving the euro-zone to restore its competitiveness and then re-joining later is technically feasible, but not likely for political reasons. Meanwhile, the idea of a very short term technical exit, or an immediate technical internal devaluation, that is without pain, is chimerical.

The only options available are external devaluation or internal devaluation.

A4 Selected publications on the legal implications of leaving the euro

Allen and Overy (October 2011) “The euro and currency unions”

Ashurst (January 2012) “Exiting the Euro – the legal consequences”

Bird & Bird (May 2010) “The Greek crisis and European Financial Stabilisation: the legal implications”

Bird & Bird (March 2010) “Greece and the euro: New dimensions in currency risk?”

Clifford Chance (January 2012) “The Eurozone Crisis and Derivatives”

Clifford Chance (November 2011) “The Eurozone Crisis and Eurobond Documentation”

Clifford Chance (November 2011) “The Eurozone Crisis and Loan Agreements”

DLA Piper (December 2011) “The Eurozone in Crisis: What are the risks for the parties in cross-border transactions?”

European Central Bank Legal Working Paper Series No. 10 by Phoebus Athanassiou (December 2009) “Withdrawal and expulsion from the EU and EMU: Some Reflections”

European Central Bank Legal Working Paper Series No. 5 by Kristine Drevina, Kestutis Laurinavicius, and Andres Tuptis (July 2007) “Legal and institutional aspects of the currency changeover following the restoration of the independence of the Baltic States”

Herbert Smith (November 2011) “Potential Eurozone break-up: Questions and answers”

Linklaters (December 2011) “Eurozone Bulletin: Do I need a contingency plan?”

Norton Rose (March 1998) “Economic and Monetary Union Thinking The Unthinkable – The Break Up of Economic and Monetary union”

Slaughter and May (October 2011) “Eurozone Crisis: What do clients need to know?”

A5 **The time needed to produce a new currency**

How long to print notes?

Euro-zone countries started printing banknotes in early 1999 – three years ahead of the currency being circulated. According to the ECB, during peak production ahead of the euro’s introduction, 15 printing works were producing a total of 1 billion notes per month. Accordingly, one printing works might be able to produce roughly 67 million notes per month. Total circulation in the euro-zone is currently just under 15 billion notes. So on this basis, a country like Greece, which accounts for 2.5% of euro-zone GDP, might need 375 million notes, which could take almost 6 months for its only printing works to produce.

Although this is a theoretical estimate on artificial assumptions, the conclusion broadly concurs with some live experience. De La Rue produced new notes ahead of the creation of South Sudan in July 2011. Production was deemed urgent and still it took six months to design and print the notes. De La Rue says that it usually it takes around one and a half years to complete similar projects and in this case the company is proud to have managed it in six months. A spokesperson there said that this was the quickest introduction of a new currency that she knew of. Printing took place in complete secrecy and was done using three sites in Sri Lanka, Malta and Kenya.

How long does it take to mint coins?

Greece would need roughly 1.5 billion coins; Italy 8 billion. We have been unable to find figures on the production capacity of European mints, but the Australian mint’s capacity is 2 million coins per day and Canada’s is 5.5 million. It would therefore take the Australian mint two years just to mint enough coins for Greece and the Canadian mint 9 months. Information from De La Rue suggests that it is much quicker to print notes than to mint coins. When introducing the South Sudanese currency, it produced notes to replace coins temporarily while coins were being minted.

Faster production?

However, the currency could probably be produced much more quickly than this if absolutely necessary. Several printing presses and mints overseas could be hired to produce drachma. If half of the euro-zone's total printing capacity was used to print drachma notes, for example, on the above timetable, it would take just a few weeks for Greece to produce enough to replace its current circulation of euros entirely. In an emergency, surely even this timetable could be shortened. Indeed, it might be possible, if necessary, to have an interim solution, where quickly and cheaply produced notes were produced initially, to be replaced (1-for-1) by better ones later. It might help to use existing designs e.g. for the old drachma, or indeed euro notes, altered in some characteristics, perhaps colour, and existing stocks of paper.

Nevertheless, even if we make the most optimistic assumption even for a small country like Greece, there would still be an uncomfortable delay of a few weeks before the new currency was available, and it will be much longer for a larger country such as Italy, which would require much more currency.

The distribution process

In order to get the new notes into circulation, banks and shops would need to be given them in advance. In the case of the euro's introduction, notes and coins were given to banks and shops from four months before the currency became legal tender. There was then an eight week period when both the euro and the old national currency were legal tender. Banks' headquarters were encouraged to order euro notes in advance by the governments agreeing to debit their accounts only gradually after the euros had been bought. This offset the cost to banks of holding the extra cash (which bears no interest).

Once bank headquarters had the notes, they distributed them to their branches using the euro-zone's 7,600 armoured cash transportation vehicles. Banks also distributed the notes to shops, who stocked their cash registers. Banks and retailers that received the cash were legally or

contractually obliged not to pass it on to customers before the official circulation date of 1st January 2002.

A similar process would have to take place for the countries exiting the euro, although in an urgent situation it would surely not need to take four months. When Czechoslovakia broke up, old notes were taken in, stamped and redistributed in a period of just four days. The public was encouraged to put cash into the bank prior to the introduction of the new currencies because, after introduction, they were told that they would only be able to exchange 4,000 CSK, which was less than one month's salary. Any (unstamped) cash that they held above that amount would no longer be legal tender.

Distribution time and possible disruptions could be minimised by making the new notes and coins the same shape and size as euros. This would make it much easier to use existing vending machines, ATMs and other machines to get the new money into circulation.

A6 Currency overprinting and stamping

There are a few examples of the overprinting or stamping of notes. But they largely fall into one of three types. First, they may be an expression of reinvigorated sovereignty or national identity. For example, the Haitian Gourde was overprinted in 1986 after the fall of the Duvalier regime and, in 1979, images of the deposed Shah were obscured on Iranian banknotes.

Second, sometimes overprinting or stamping currency has been conducted in response to wartime uncertainties. After the attack on Pearl Harbour, the United States authorities replaced the currency in circulation in Hawaii with overprinted notes so that exchangeable dollars would not fall into the hands of invading Japanese forces. Conversely, stamping of pre-existing currency has also been used by an invading force as an interim measure before the issuing of its own currency.

Third, these techniques have often been used in response to the breakup of currency unions — most notably with the collapse of the Austro-Hungarian Empire's currency, the crown, after World War I and the Czechoslovak koruna in 1993. In the Czech-Slovak split, monetary separation was announced on 3rd February 1993. New currencies (the Czech koruna and Slovak koruna) officially replaced the old Czechoslovakian koruna on 8th February. Initially, the old banknotes were stamped, but this was problematic as the stamp could easily be forged. The stamped banknotes were gradually replaced by new Czech and Slovak notes. New banknotes were in circulation by the end of August 1993 – almost seven months after the break-up was announced. Only the 100, 500 and 1000 korun denominations were overstamped – the lower denominations circulated unchanged during the transitional period.

Even in these circumstances, the politics may be as important as the economics; the Serb, Croat and Slovenian Kingdom was quick to call in and stamp the Austro-Hungarian crowns with their national emblem in 1919.

However, there are important economic rationales as well. In particular, stamping has been deployed to limit the impact of currency flight and hoarding during a currency break-up.

In conjunction with other measures such as border controls, travel restrictions and temporary seizure of deposits, stamping has been used to reduce the flight of currency from weaker to stronger members of a failing currency union. Currency flight is a problem not only for weaker members, whose capital and liquidity is drained, but also for stronger partners, who may suffer inflationary consequences. Hyperinflation was rife in both Hungary and Austria after the Great War. All members, therefore, have an incentive to stamp their currency as their own — provided then that the other member jurisdictions stop recognising the stamped notes as legal tender in their areas. Indeed, where stamping has occurred in a currency union, it has tended to spread to jurisdictions throughout the union.

A related problem is hoarding — whereby individuals in the weaker member economies may hold back reserves of the monetary union's currency in order to trade it later after the new currency has devalued against the original. This is only an issue if the 'original' currency remains as permitted tender. If stamping is conducted throughout the monetary union, ensuring that notes are demonstrably from one jurisdiction or another, there is no need for unmarked notes to remain as permitted tender and hoarding can be discouraged.

There are some significant differences between today's euro-zone and the fallen currency unions of 1919 and 1993. First, the fragmentation of both the Austro-Hungarian Empire and Czechoslovakia saw their monetary unions dissolve into successor jurisdictions of broadly similar size; at least initially, any break-up of the euro-zone looks likely to see small jurisdictions set apart from a much larger residual single currency bloc.

Second, there has been little momentum in previous currency union failures to retain the original currency and, indeed, there has never been the expectation that a residual currency could retain (or even increase) its value.

Third, the stronger countries in the euro-zone have much less to fear from currency flight — as the inflationary potential of currency flight are minimal, because of both the small scale of the likely departing countries and underlying lack of pressure on domestic prices.

A7 How far might the currency need to fall?

How much competitiveness have the peripheral economies lost since the euro's inception?

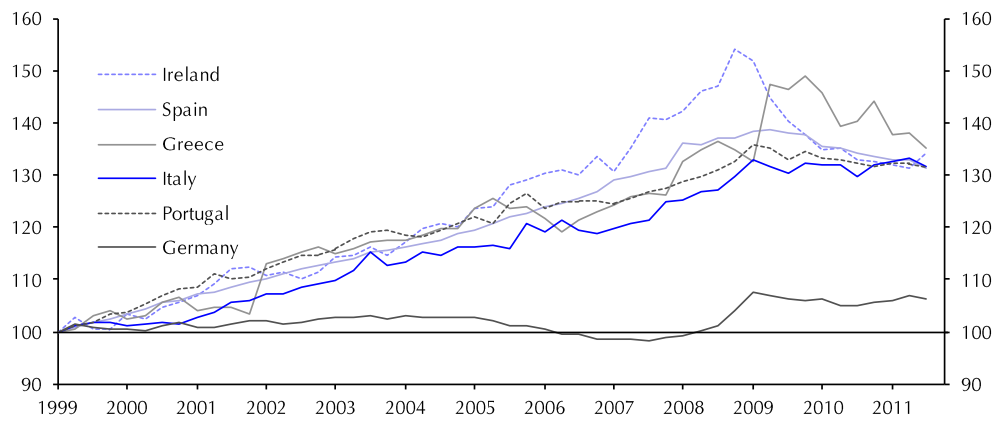
When trying to assess the likely size of the falls in the peripheral economies' new exchange rates, a useful starting point is to look at the size of the falls that might be needed to restore external balance in these economies. As Figure 16 shows, since 1999, whole economy unit labour costs have risen by 35% in Greece, 34% in Ireland, 32% in Italy and Portugal and 31% in Spain. By contrast, they have increased by just 6% in Germany.¹⁶ Since the bulk of exports are produced by the manufacturing sector, it may be helpful also to look at cost developments in this sector. According to the OECD, over the same period, manufacturing unit labour costs have fallen by 6% in Germany and 33% in Ireland. (See Figure 17.) Meanwhile, Italy, Spain and Portugal recorded rises of 40%, 22% and 13% respectively. Data for Greece are not available.

Other price indices, such as the GDP deflator and EU harmonised consumer price index, also show that prices in the peripheral economies have risen by substantially more than in Germany over this period. (See Figure 18 and Figure 19.) For the GDP deflator, the size of the discrepancy between Germany and the peripheral countries is broadly similar to the one revealed by the unit labour cost measures. The discrepancy on the CPI measure is much smaller. The changes in all four of these costs measures between Q4 1998 and Q2 2011 for all six economies are summarised in Table 6.

¹⁶

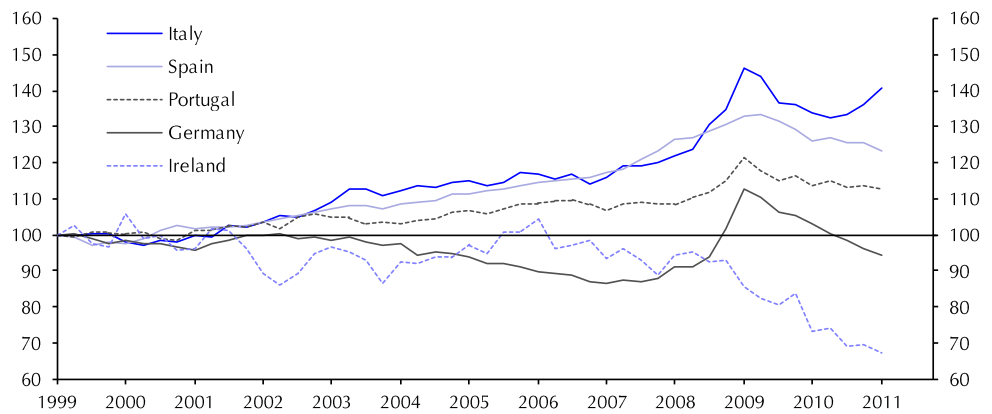
Italy, Spain, Ireland, Portugal and Germany all entered the euro-zone in 1999, but Greece joined in 2001. In this section, we look at changes in Greek costs and prices since 1999, rather than 2001 so that all the figures are comparable across countries. But the results for Greece would be the same qualitatively if a start date of 2001 was used.

Figure 16: Whole economy unit labour costs (Q1 1999 = 100)



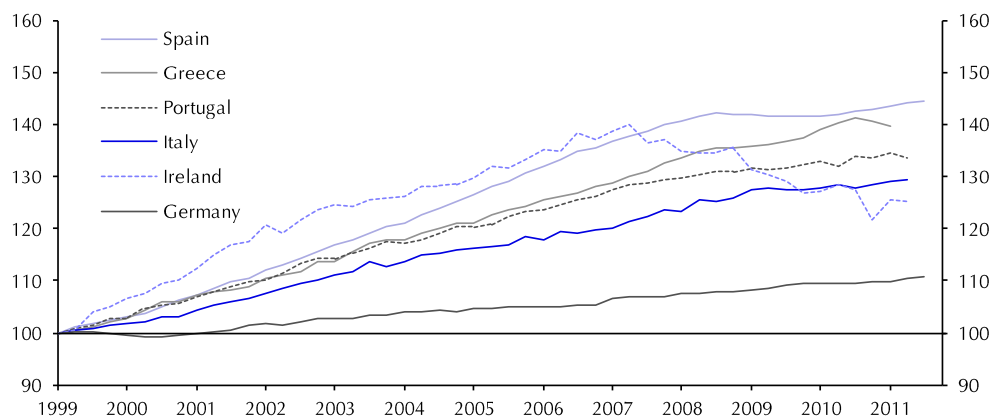
Source: ECB, Thomson Datastream, Capital Economics

Figure 17: Manufacturing unit labour costs (Q1 1999 = 100)

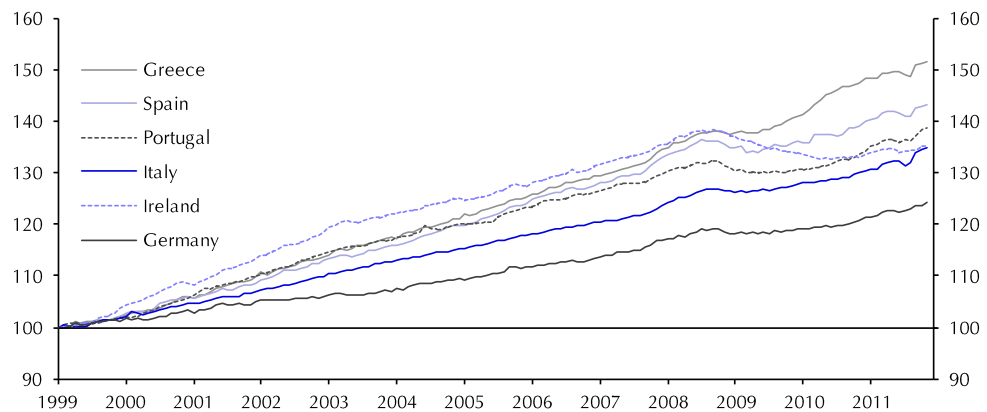


Source: OECD, Capital Economics

Figure 18: GDP deflator (Q1 1999 = 100)



Source: Thomson Datastream, Capital Economics

Figure 19: Harmonised consumer price index (seasonally adjusted, January 1999 = 100)

Source: Thomson Datastream, Capital Economics

An alternative way to assess changes in an economy's competitive position is to look at movements in its real exchange rate.

The table also provides estimates of changes in four measures of the real effective exchange rate (REER) for Germany and the five southern and peripheral euro-zone economies since Q4 1998. A positive number indicates that the REER has risen, implying that the economy has become less competitive. A negative number is consistent with a depreciation of the REER. On the whole, these measures also suggest that the peripheral economies' competitive positions have deteriorated since the formation of the single currency. The range for the change in the REER on different measures is from less than 3% to 34% in Italy, 7% to 17% in Spain, 11% to 13% in Greece, and under 3% to 5% in Portugal. The Irish REER measures paint a rather more mixed picture. Three measures range between 5% and 11%, but the measure based on manufacturing unit labour costs suggests a fall in costs of 34%. In all cases, however, the REER measures on their own are too flattering, since the comparable measures for Germany have also fallen.

Table 6: Changes in competitiveness measures (% , Q4 1998 to Q2 2011)

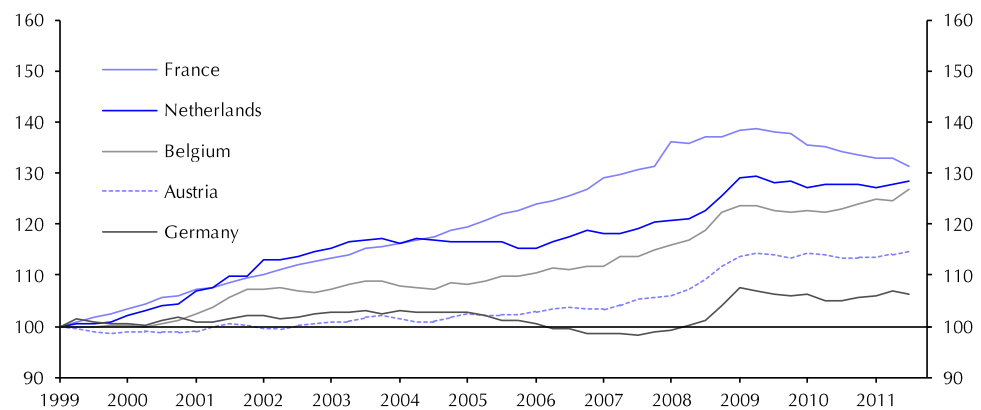
	Germany	Italy	Spain	Greece	Portugal	Ireland
1. Whole economy unit labour costs	5.7	30.7	33.1	37.8	32.2	31.5
2. Manufacturing unit labour costs (Q4 '98 to Q1 '11)	-6.3	39.6	23.0	NA	13.1	-34.0
3. GDP deflator	10.1	29.1	43.5	40.7	34.9	26.0
4. Harmonised CPI	22.5	32.5	41.5	49.8	35.9	34.1
5. Nominal effective exchange rate	0.6	2.1	0.8	0.2	0.7	6.0
6. REER (whole economy unit labour cost measure)	-17.7	9.0	7.0	10.9	NA	7.5
7. REER (manufacturing unit labour cost measure)	-13.0	33.7	17.1	NA	2.5	-33.7
8. REER (GDP deflator measure)	-15.6	3.6	16.7	11.0	5.3	5.1
9. REER (CPI measure)	-7.3	2.6	11.9	12.9	4.7	11.1
10. Average change in the REER (Ave of 6, 7,8 & 9.)	-13.4	12.2	13.2	11.6	4.2	-2.5

Sources: ECB, OECD, Capital Economics

To summarise, most of the costs and prices data suggest that the peripheral euro-zone economies might need to reduce their real exchange rates by between 10% and 30% to regain the competitiveness lost to Germany since the start of 1999. But on the whole, the REER data suggest that economies may require much smaller falls of perhaps 10% or less. (Note that this discrepancy cannot be explained by changes in the nominal exchange rate. Between Q4 1998 and Q2 2011, the euro appreciated by about 5%.)

Why might such measures be misleading?

Admittedly, comparing the peripheral economies' wage and cost developments to those of Germany may be a bit misleading. After all, as Figure 20 shows, costs and prices in France and the other so-called 'core' euro-zone economies have risen more sharply than in Germany. As a result, Germany is now ultra-competitive. This is borne out by its real exchange rate falling sharply since 1999 and by it running a current account surplus of around 5% of GDP last year.

Figure 20: Whole economy unit labour costs (Q1 1999=100)

Source: Thomson Datastream, Capital Economics

But on the other hand, we think that the REER measures probably underestimate the degree to which the peripheral economies will need to reduce their relative costs and prices over the coming years. After all, a fairly large share of these economies' trade is conducted with other economies where wage and cost growth has also been high. For instance, just over 25% of Portuguese exports go to Spain. But if these trade partners are also going to try actively to reduce their relative prices and costs over the coming years, for each of the others the changes in the REERs shown in the table will understate the real exchange adjustment needed to return these economies' competitiveness to its level prior to the formation of the single currency. If the non-German core economies try to regain competitiveness against Germany too, it is conceivable that the peripheral euro-zone economies may ultimately need their real exchange rates to fall by up to 30%.

One riposte to all this is that the peripheral economies may have been in an unusually competitive position when they entered the euro-zone. If that were the case, then, depending on the extent of this advantage on the eve of the euro's inception, the subsequent loss in competitiveness might simply represent a return to normal. There is no hard and fast measure of when a country's costs are at 'the right' level compared to its competitors and trading partners. But there are some facts which we can draw on to piece together a conclusion.

First, in the years immediately before monetary union, most of the peripheral euro-zone economies did not appear to gain a significant amount of competitiveness against Germany. As Table 7 shows, between 1991 and 1998, unit labour costs in Greece and Portugal rose by 98% and 42% respectively, far higher than the 10% gain in Germany. A similar picture is painted when comparing changes in their GDP deflators and consumer prices over the same period. Admittedly, these developments coincided with the Greek drachma and Portuguese escudo depreciating against the German mark, by 36% and 11% respectively. Nonetheless, the drachma and escudo still appreciated in real terms against the mark. Ireland's currency also rose against the mark in real terms prior to the inception of the single currency. But this was largely down to an increase in Ireland's nominal exchange rate, rather than larger rises in costs and prices there.

Table 7: Cost and price developments (% change, 1991 to 1998)

	Germany	Italy	Spain	Greece	Portugal	Ireland
Whole economy unit labour costs	10	15	30	98	42	14
GDP deflator	20	35	38	110	54	33
CPI (national measure)	24	36	36	111	48	19
German marks per unit of domestic currency	-	-25	-24	-36	-11	34

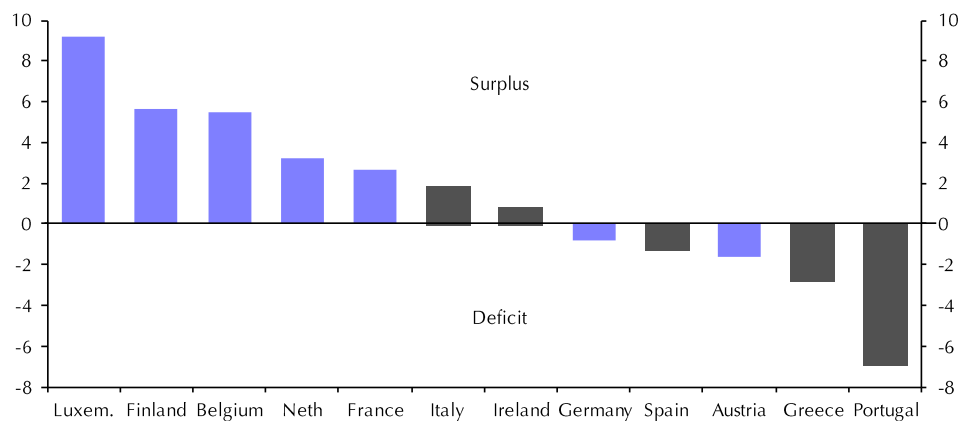
Source: Thomson Datastream, Capital Economics

Meanwhile, the Italian lira might have depreciated by between 10% and 20% in real terms against the German mark between 1991 and 1998. Over the same period, the real value of the Spanish peseta may have fallen by as much as 10% against the mark. But note that these falls are probably smaller than the increases recorded since 1999.

Second, if these economies had entered the euro with ultracompetitive exchange rates, they would probably have had large current account surpluses prior to joining the single currency. As Figure 21 shows, the only two peripheral euro-zone economies that had surpluses in 1998 were Italy (1.9% of GDP) and Ireland (0.8% of GDP). At face value, Italy in particular might have joined the euro at a pretty favourable exchange rate. Note, though, that the OECD estimates that Italian GDP was just over 1% below its potential level in 1998, implying that at least some of Italy's surplus

reflected subdued import demand. Based on all this, we doubt that Italy joined the euro-zone with a significantly undervalued currency. In 1998, Spain, Greece and Portugal ran current account deficits of 1.2%, 2.8% and 6.9% of GDP respectively. Over the same period, the OECD estimates that Spanish and Greek GDP were below their sustainable levels while Portuguese output was probably only slightly above its potential level. As a result, these economies' current accounts deficits are likely to have been primarily down to structural rather than cyclical factors, implying that they probably did not enter the euro-zone with competitive exchange rates.

Figure 21: Current account balance in 1998 (% of GDP)



Source: Thomson Datastream, Capital Economics

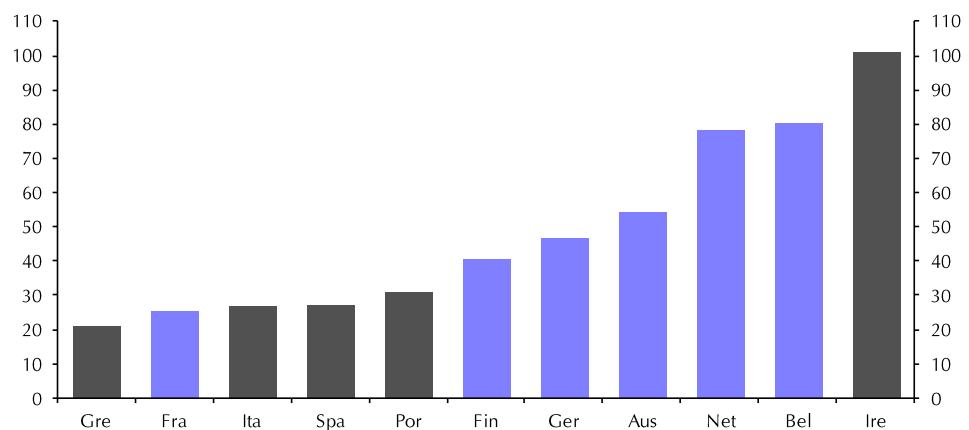
All this suggests that the peripheral economies did not join the euro with a strong competitive advantage. This implies that all five of these economies may now need substantial falls in their exchange rates to restore external balance. In fact, there are reasons why the scale of the adjustment of the exchange rate may go beyond the size of the loss of competitiveness since 1999.

First, although all these economies are probably operating with plenty of spare capacity, most are still running large current account deficits. Last year, the Greek and Portuguese deficits were probably in excess of 8% of GDP, while the Italian and Spanish deficits may have been about 4% of GDP. This suggests that substantial adjustments will be needed to ensure that these economies' current accounts are in balance when they eventually operate at full capacity again. Ireland probably ran a current account surplus

of about 1.5% of GDP in 2011. But its current account would probably be in deficit if the economy was running without any slack. After all in Q3 2011, GDP was still almost 12% below its peak.

Second, with the notable exception of Ireland, the peripheral economies' task of narrowing their current account deficits will be made harder by the fact that they are fairly closed economies by euro-zone standards. (See Figure 22). The smaller international trade is relative to overall GDP, the larger the percentage increase in exports (or percentage decrease in imports) that will be needed to close the current account deficit by a specific share of GDP. By contrast, Ireland's openness to trade should make the adjustment process rather easier there.

Figure 22: Exports (% of GDP, 2010)



Source: Thomson Datastream, Capital Economics

Third, over the next few years, all these economies look set to suffer from further falls in domestic demand, implying that they will need a bout of strong export growth to prevent the overall economy from contracting. After all, not only do these economies need to tighten fiscal policy substantially to eliminate huge budget deficits and reduce their public debt to GDP ratios to more sustainable levels, but high levels of private sector debt in Spain, Portugal and Ireland point to a long period of private sector deleveraging too. (See Table 8 and Figure 23). In addition, the banks in all five economies also look set to try to reduce the size of their balance sheets and boost their capital ratios over the coming years. Accordingly, even those firms and households that want to borrow more may struggle to gain

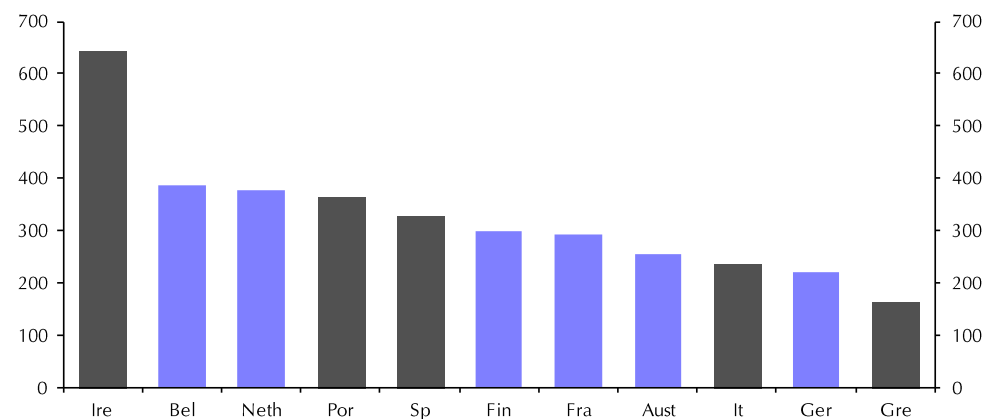
access to credit. In other words, in order to get anywhere near full employment (which, quite apart from anything else, is desirable in order to reduce the size of government and private sector debt) over the coming years these economies will probably need to run significant current account surpluses.

Table 8: Government debt and deficits (% of GDP, 2011, forecasts)

	Italy	Spain	Greece	Portugal	Ireland
General government budget deficit	4.5	8.2	9.0	6.0	10.1
Public debt	120	67	162	107	107

Source – Capital Economics

Figure 23: Households' and non-financial firms' liabilities (% of GDP, 2010)



Source: Eurostat, Capital Economics

Finally, once a peripheral country has left the euro, a fall in the value of its new currency will raise domestic prices. Accordingly, the nominal exchange rate will have to depreciate more sharply than the required fall in the real exchange rate to restore external balance.

How far might these economies' exchange rates need to fall?

Of course, the size of the falls in the nominal exchange rate that these economies need is highly uncertain. But on balance, we think that Greece and Portugal might need their exchange rates to fall by up to 40%. Italy and Spain will also need substantial depreciations of perhaps as much as 30%. Given that the Irish economy is more open and appears more competitive

than its southern euro-zone counterparts, it may require a smaller fall in its exchange rate, of perhaps 15%.

How far would the currencies fall?

There is a strong chance that if any of these economies left the euro-zone, their currencies would depreciate by more than these estimates. After all, exiting the euro-zone would have huge implications and there is a huge amount of uncertainty over their repercussions on the domestic economy and financial markets. If investors feared some form of economic meltdown, they might try to withdraw their money from the economy, almost regardless of the losses that this would involve.

This presumption is supported by the fact that past experience has shown that the exchange rates of economies suffering from economic and financial crises tend to fall sharply, before eventually reversing some of their initial falls. In 2008, the Icelandic krona plunged by around 50% against the euro in response to Iceland's economic and financial market meltdown. Since then, the krona has appreciated by about around 20% against the euro. Meanwhile, when Argentina abandoned its dollar peg in 2002, the peso depreciated rapidly and by the middle of the year had fallen by about 75% against the dollar. Thereafter, the peso appreciated modestly and further rises would probably have taken place had Argentine policymakers not intervened in the currency markets. Sterling fell by around 15% against the German mark after the UK exited the Exchange Rate Mechanism (ERM) in September 1992. But over the following three months the pound appreciated by around 5% against the mark. And by late 1997, the exchange rate was back at its central ERM target rate of DM2.95.

Of course, it is impossible to predict how far the southern and peripheral euro-zone economies' exchange rates would actually fall, not least because it will depend on the exact circumstances under which these economies were to leave and the policies that were adopted before, during and after the exit. Nonetheless, we would not be surprised if the Greek and Portuguese exchange rates initially fell by more than 50%. Meanwhile, the Italian and Spanish exchange rates could depreciate by perhaps as much as 40% while

a 25% drop in the Irish currency is feasible. Thereafter, these exchange rates might well appreciate.

A8 What would be the response of inflation to a fall in the exchange rate?

The evidence from past devaluations

Past historical episodes show that inflation tends to rise sharply in economies experiencing steep falls in their exchange rate. For instance, after the Argentine peso fell by around 70% against the dollar in 2002, inflation soared from -1% in 2001 to about 40% by late 2002. Similarly, a 50% or so decline in the Icelandic krona relative to the euro in 2008 prompted CPI inflation to rise from 3.4% in August 2007 to 18.6% in January 2009. But in both cases inflation subsided and a fall in the real exchange rate was secured.

What might happen to inflation in the periphery?

Other things equal, the larger the depreciation of the currency, the higher the initial jump in inflation. As already outlined in section 5.1, Greece and Portugal will probably require the biggest currency depreciations if they leave the euro-zone. The declines in the values of new Italian and Spanish currencies would probably need to be somewhat smaller and the fall in the Irish exchange rate would probably be smaller still.

But the size of the initial inflationary impact will also depend upon the degree to which the country is exposed to international trade. In 2010, the ratios of imports to GDP in the peripheral countries were as follows: Italy 28%, Spain 29%, Greece 29%, Portugal 38% and Ireland 82%. This implies that for a 10% fall in the exchange rate, the direct effect from higher import prices would be to raise the price level by almost 3% in Italy, Spain and Greece, nearly 4% in Portugal and around 8% in Ireland.

But, as implied by the theoretical discussion above, there are reasons why the effect might be larger, or conceivably smaller, than this. As argued above, the price of tradeables which are produced and consumed

domestically, and even to some extent the price of non-tradeables, may also rise.

On the other hand, though, there are some factors which point in the other direction. First, prices will not react immediately as many importers and retailers will have agreed long-term pricing contracts with their suppliers. Second, given the weakness of demand in these economies, suppliers and retailers are unlikely to be able to pass on the entire increase in their costs to their customers and will therefore absorb some of the rise in their margins. Third, the rise in the final price will be smaller if a large proportion of the price is accounted for by taxes which are not proportionate to the ex-tax price.

Moreover, the total impact on the price level, whatever it is, does not necessarily translate into the impact on the annual inflation rate. This depends on how rapidly prices are increased. A total impact on the price level of 10% could lead to an increase in the inflation rate of 10% if the effect came through in one year. But if the impact were split equally over two years, there would be an increase of 5% maintained for two years. There are, of course, umpteen possible combinations in between.

Given all this, and based on the assumption that the peripheral euro-zone economies' exchange rates fall immediately in line with the estimates that we set out in Appendix 7, we think that the exchange rate depreciation might raise the price level by about 15% in Portugal, 13% in Greece and 10% in Italy, Spain and Ireland. Assuming that this adjustment takes place over a two year period, the effect would be to raise the annual inflation rate by about 7% per year in Greece, about 6% in Portugal, and 5% in Italy, Spain and Ireland. Such increases in the price level would be sufficiently low to enable these countries to enjoy substantial falls in their real exchange rate as a result of euro-zone exit.

A9 Sovereign, private and bank debt: default and restructuring

There is no doubt that some sovereign defaults are in the pipeline even if the euro-zone continues with its existing membership. Greece and its creditors have been engaged in negotiations over a de facto default on Greek sovereign debt since July 2011. Ireland and Portugal are locked out of capital markets and may not regain access. And bond yields in Italy and Spain suggest there is a real risk that they too will soon be unable to borrow in the markets. All these countries may be forced to default or restructure their debt regardless of whether they leave the single currency area.

However, if any of the weaker peripheral economies were to create their own currency that would make an early default inevitable. The new currency would depreciate sharply against the euro (which is of course the objective in leaving in the first place) and this would greatly reduce the value of the government's revenues and its GDP measured in euros. As long as the country's debt is still denominated in euros, this depreciation would in turn make debt service even more costly as a share of government revenues than it was prior to exiting the euro.

Historically, countries which undergo a major default and devaluation usually suffer a large drop in the dollar value of their GDP. For example, between the year *before* and the year *after* its peso devaluation in 1994, i.e. between 1993 and 1995, the dollar value of Mexico's GDP fell by 35%. The equivalent figures were 38% in both Thailand and Korea (1996-98); 52% in Russia (1997-99); 58% in Indonesia (1996-98); and 62% in Argentina (2000-02).

Advanced economies which have undergone a significant nominal devaluation have not usually been forced to default on their sovereign debt. The main reason for this is that advanced economies do not normally have significant foreign currency denominated debt. In these cases, any movement in the exchange rate therefore has had no direct impact on the ratio of debt to GDP or to government revenues.

After leaving the euro-zone, any peripheral country whose currency depreciated may default on its sovereign debt simply by declaring a moratorium i.e. ending contractual payments on principal and coupons. Alternatively, it may redenominate its debt from euros into the new currency. From a legal perspective this would also constitute a default provided that the euro-value of the payments was reduced, as it surely would be.

In the event that a country in a strong financial position leaves the euro – for example Germany – the government should easily be able to continue to service its debt in euros, for its new currencies should *appreciate* against the euro. This would *reduce* its debt service burden as a share of GDP or government revenues.

When to default

As discussed above, the negative impact of devaluation on a country's debt service capacity suggests that default would quickly become unavoidable once a country left the euro-zone – unless there were a further massive increase in support from the IMF and other EU countries – something which we assume is unlikely. It therefore seems inevitable that peripheral governments which leave the euro would need to default either before, or else immediately after, they do so.

There is a very strong case for sovereign default to be implemented at least partly through redenomination of debt into local currency as this would remove any mismatch between the currency of the government's public debt and the currency in which the government earns tax revenue. An obvious possibility would be to announce the redenomination at the time the new currency is created. Moreover, this minimises the disruption for domestic residents who in many cases hold a high proportion of the debt. They would continue to hold the same amount of debt, with the same interest payments. It would simply be that the real value of this debt would be lower, thanks to the inflation unleashed by the depreciation, and its exchange value into other currencies would be lower. But all other domestic nominal values, including whatever liabilities the bond holder had against these assets, would be subject to substantially the same changes.

How big a debt reduction is needed?

There is no simple way to determine how large a write-off is needed after a government defaults because there is no arithmetic way to assess how much debt a country can bear. There are many historical examples of sovereign default on comparatively low levels of public debt. Equally there are examples of governments continuing to service debt despite high debt ratio. Indeed, the euro-zone crisis itself demonstrates that debt which appears sustainable in one year may prove to be unsustainable in another.

Also, it is difficult to predict the path of GDP, government revenues or exports at the best of times, and particularly difficult following a sovereign default. This adds to uncertainty about a government's debt service capacity.

That being said, it is clear that, after defaulting, a country's total sovereign debt would need to be reduced to a level which the markets consider sustainable. Otherwise the government would still not be able to finance its budget after the debt is restructured. Moreover, even if it does not need to borrow from the markets immediately (either because it is running a primary budget surplus or because the central bank is providing finance by buying government debt), the state of overall confidence in the economy will be boosted by the widespread knowledge that government finances were now on a firm footing. Moreover, there would be a strong case for the government not only to reduce the debt ratio to its level shortly before the crisis, but to cut the debt burden to a much lower level in order to put the government in a much stronger position than previously.

With this in mind, Table 10 (p153) shows the percentage reduction in debt which would be needed to bring the ratio of debt to GDP down to 60% for the five peripheral euro-zone countries as well as for Germany and France. We have chosen a ratio of 60% for illustrative purposes because this is the ceiling under the Maastricht Treaty. Clearly a much higher ratio could be chosen, as discussed below.

For each country, column (a) in the table shows the debt/GDP ratio in 2011. Columns (b) and (c) show the amount of debt which would need to be

written off in order to bring this ratio down to 60% immediately as a percentage of GDP and as a percentage of the original debt stock. Columns (d) and (e) show the percentage debt reduction which would be required if there were a further 10% fall in (real) GDP before the debt write-off.

Finally, columns (f) and (g) show the debt reduction required to achieve a 60% debt/GDP ratio if GDP fell by 10% in real terms and the country suffered a 30% currency depreciation. The assumption of a 30% depreciation is also illustrative, but is consistent with the discussion of exchange rates earlier in this paper. For the last two columns, we have excluded Germany and France because we anticipate that their currencies would *appreciate*, rather than depreciate, if they left the euro-zone.

Clearly, a large debt write-off would be required today for all countries except Spain in order to bring the debt ratio down to 60%, even if they remain in the euro-zone. But a much larger debt reduction would be needed if countries leave the euro. As shown in column (g), which is the most relevant one for this paper, the write-off would vary from 44% for Spain to 77% for Greece.¹⁷

It is worth pointing out some caveats to these calculations. Firstly, the figures take no account of dynamic effects, i.e. the change in the debt ratio over time which results from fiscal deficits, GDP growth and interest payments.

Secondly, the 60% figure is quite arbitrary. A higher figure could be justified, and indeed different countries could bear different amounts of debt. However, we are very sceptical that the current plans to reduce Greece's public debt to 120% of GDP by 2020 will provide a large enough reduction to convince markets that Greece's debt stock is sustainable. Also, historical experience suggests that once a country has defaulted outright a fairly large debt reduction is usually agreed.

¹⁷

Losses of this order of magnitude are consistent with historical experience of sovereign default. For example, debt write-offs under the Brady plan, between 1989 and 1997, were mostly between 35% and 50% in net present value terms.

Thirdly, the extent of depreciation would vary between countries.

Finally, the currency depreciation would have no impact on the debt ratio if the debt is redenominated into local currency at the time the country leaves the euro-zone. As discussed above, this would be an alternative form of default rather than a ruse to avoid default. Nevertheless, it would clearly be preferable if countries leaving the euro were able to service their debt in full in the new currency. This might be possible for a country such as Spain, whose debt ratio is not too high. It would also be more likely to be feasible if the country concerned experienced a period of high inflation immediately after exiting the euro.

Burden sharing between creditors

The level of debt reduction (or haircut) for private creditors may need to be substantially higher than the figures shown in Table 10, because some official creditors, including the IMF, European Financial Stability Facility and ECB, may not accept a reduction of their share of the debt. This is one reason for the proposed percentage private sector haircut in the case of Greek debt being much larger than the overall reduction in Greek public debt.¹⁸ The latest proposal is reported to be for 65-70% debt reduction in net present value terms for bondholders but this would achieve a much lower reduction in the total Greek public debt stock.

The issue of burden sharing between creditors may be of growing importance over time, as official creditors' exposure to Greece increases. Also, the situation may change when the European Stability Mechanism is introduced.¹⁹

¹⁸ At the time of writing, Greece's total public debt is approximately €350bn, €237bn of which is in the form of government bonds and €200bn of which is to be subjected to debt reduction as part of the "private sector involvement". The ECB's holdings of Greek government bonds are approximately €40-50bn and are excluded from the restructuring, as are the loans from the IMF (€20bn) and EFSF (€53bn).

¹⁹ There is a suggestion that the EFSF's successor, the European Stability Mechanism, might have preferred creditor status on loans to any countries other than Greece, Ireland and Portugal. If so, this would imply much larger debt write-offs for private creditors in order to achieve the same reduction in debt ratios. But on the other hand there is now active discussion about the ECB accepting some share of debt reduction.

Dynamic effects

The arithmetic presented in Table 10 was based on an assumption that the devaluation, fall in GDP and debt write-off all occurred immediately. In reality, of course, debt ratios change over time as a result of new net government borrowing or debt repayments, and the growth of GDP. The scale of government borrowing in turn depends on the interest paid on government debt and the non-interest (or primary) budget deficit.²⁰

As described above, devaluation causes an immediate jump in the ratio of debt to GDP. In some cases, including most peripheral euro-zone countries, we expect this would force the governments concerned to default on their debt, in the first instance by redenominating the debt into local currency.

However, devaluation is likely to have a very positive effect on interest rates, GDP growth and the primary fiscal balance, particularly if it is accompanied by a default and reduction in the debt burden. This means that after a one-off jump, the ratio of debt to GDP would be likely to stabilise or begin to fall.

This is illustrated in Figure 24 for a hypothetical peripheral euro-zone country which has a public debt burden of 80% of GDP in 2012, denominated in euros.

In the baseline scenario, GDP growth is zero, the interest rate (or yield) on government debt is 7% and the primary fiscal deficit is 3% — numbers which are close to those of some peripheral countries today. As the yield is higher than the growth rate, and the country is running a primary deficit, the debt ratio will rise continuously, meaning a default at some point would be inevitable.

²⁰ The following equation shows how debt as a share of GDP will evolve over time: $D_t/Y_t = (1+r)D_{t-1}/(1+g)Y_{t-1} + b_t$.

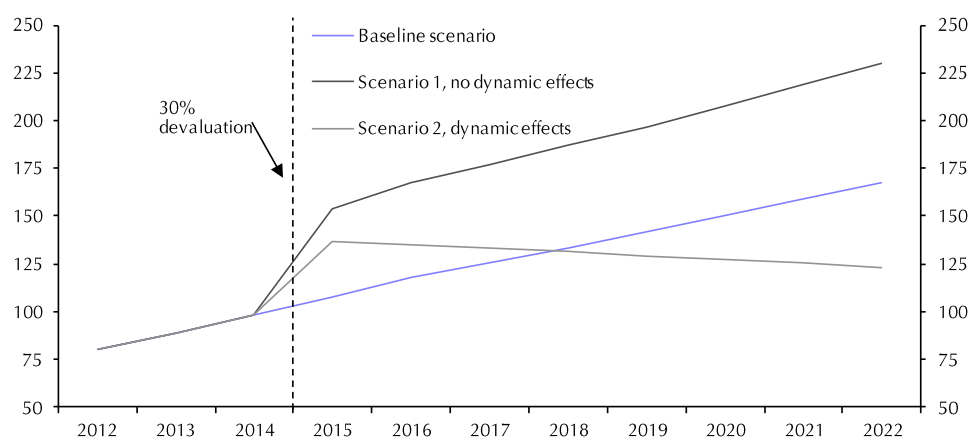
Where D_t is government debt at time t , Y_t is GDP at time t , r is the nominal interest rate, g is the nominal growth rate of GDP, b_t is the primary fiscal balance as a share of GDP at time t . If r is greater than g , the government will need to run a primary fiscal surplus to prevent the debt to GDP ratio from rising. The larger r relative to g and the higher the debt to GDP ratio, the larger this primary surplus will need to be.

In the chart, Scenario 1 shows the path of debt to GDP on the assumption that the fiscal deficits, growth rate and interest rates remain unchanged but assuming there is a 30% devaluation in 2014. There is a step change in the debt ratio when the devaluation occurs, after which the debt ratio continues to rise. Default would occur sooner than in the baseline scenario.

Scenario 2 shows how the debt ratio would develop on the assumption that there is an identical devaluation but that growth then picks up from zero to 3%, the yield on government debt falls from 7% to 3%, and the primary fiscal balance improves from a deficit of 3% of GDP to a surplus of 2% of GDP. This turn-around means that the debt ratio begins to fall. In practice, the devaluation would also be likely to lead to default, meaning the debt ratio would not jump as far as shown in the chart.

Experience in countries which have undergone major devaluations and default suggests these dynamic effects could be even greater. Russia in 1998 and Argentina in 2001/02 are good examples: in both cases there was a one-off jump in the debt ratio because of devaluation. This led to default but it also generated an increase in the growth rate and reduction in interest rates. Subsequently the debt ratios began to fall.

Figure 24: Public debt as a share of GDP (%): Illustrative scenarios



Source: Bank for International Settlements, Capital Economics

Profile of debt repayments

It is not just the total debt stock but the profile of annual debt repayments which needs to be sustainable. During the course of negotiations between

creditors and governments, investors would expect to be presented with a menu of options, all of which would achieve the same present value debt reduction, but with different maturity and coupon structures. The choices would need to be consistent with a credible profile of public debt payments.

Should the euro-zone coordinate over debt restructuring?

If the euro-zone is completely dismantled, there may be a case for a collective approach to debt default and restructuring.

One advantage of a coordinated approach would be that it would enable banks to assess their losses from exposure to all countries leaving the euro-zone before any measures are taken to recapitalise them.

Another potential advantage would be that creditor governments may provide collateral to incentivise debt restructuring and perhaps make it less costly. This was the main innovation of the Brady plan, which is the only relevant precedent for a coordinated restructuring of sovereign debt of several countries. Under this plan, collateral was used to enhance the value of the bonds which were exchanged for defaulted loans for seventeen countries.

There would also be some risks associated with the use of collateral. In particular, there may be better targeted ways to provide support to creditor banks in the event of sovereign defaults. Any collateral embedded in new bonds issued by the debtor governments would go to all creditors indiscriminately, including some which do not merit any official support, including relatively sophisticated investors like investment banks and hedge funds, which do not pose a systemic threat to the economy.

It would, in our view, be a mistake to attempt a ‘one-size-fits-all’ approach to sovereign debt write-offs, through which all countries would end up with the same ratio of debt to GDP or some other key variable. Negotiations between creditors and debtor governments should be undertaken on a country-by-country basis because each country is in a unique situation and

because ultimately the agreement on debt restructuring needs to be acceptable to both creditors and the debtor government.

The impact on government finances

Sovereign default would have an immediate impact on government expenditure as the governments concerned would, by definition, no longer be servicing either the interest or the principal due on public debt. Savings from defaulting on interest payments would vary between countries. For 2012, the IMF estimates that interest payments will be around 2.1% of GDP in Spain, 4.1% and 4.2% for Portugal and Ireland respectively, and 7.7% of GDP for Greece.

Table 9: General government primary fiscal balance (% of GDP)

	2009	2010	2011f	2012f*	2013f*
Greece	-10.3	-4.9	-1.3	0.8	3.3
Ireland	-12.4	-28.9*	-6.8	-4.4	-1.5
Italy	-1.0	-0.3	0.5	2.6	4.1
Portugal	-7.4	-6.3	-1.9	0.1	1.9
Spain	-9.9	-7.8	-4.4	-3.1	-2.1

Source: IMF data including 2011 estimates and 2012 forecasts; * largely due to recapitalisation of the banks. * On assumption of the current situation, including euro membership.

Countries which default while still in the euro-zone and while running a primary budget deficit would be unable to meet even their running costs because their non-interest expenditure is, by definition, greater than their revenue. They may consequently be forced to cut public sector salaries or other major areas of government expenditure. However, there are two reasons why this is less of a concern than is often assumed.

First, the primary deficits of peripheral euro-zone economies have fallen sharply since 2009. (See Table 9). Most of these countries may find that their financial positions are manageable if they default in 2012 or 2013 as their revenues may be sufficient to cover their non-interest expenditure by then.

Second, for any country which leaves the euro, its own central bank would be able to cover the primary deficit by buying government bonds, in other words ‘printing money’. There are of course limits to the scale on which this can be done without creating inflation. But, in the context of an economy requiring a boost to domestic demand, some extra stimulus from money creation could actually prove to be useful.

Private sector debt

The question of whether or not private companies should default on euro-denominated debt is distinct from the question of whether governments should do so.

In some cases, companies may be able to continue servicing their debt in full; in others, this may not be possible, meaning the debt may need to be partially written off or at least rescheduled.

Let’s consider the case of Greek companies if and when Greece leaves the euro-zone.

A domestically-oriented company, such as a telecommunications firm, would be likely to have a client base which is primarily local but liabilities which are mainly euro-denominated bonds and loans from banks in other parts of the euro-zone, such as Germany. If so, it would be unable to service its debt after devaluation as a result of the increase in the cost of its debt service relative to its revenues.

By contrast, a Greek manufacturing company which gets all of its revenue from exports would be likely to benefit from devaluation. At the same euro price for its exports, the drachma price would rise in step with the devaluation. Accordingly, no gap would open up between its revenues and its debt servicing obligations.

For a company whose output is partly exported and which has debt denominated in euros the issue is not clear cut. The impact of devaluation on its finances would depend on a variety of factors including the proportion of its output which is exported, the proportion of its costs which

is priced in euros versus the new domestic currency, and the size of its debts.

In normal economic circumstances, the presumption should be that governments leave companies and their creditors to resolve any payment difficulties between themselves. The government's role should be confined to ensuring that there is a clear and stable legal framework and legal infrastructure. If a corporation is unable to service its debts, it may need to negotiate with creditors to reschedule its loans or reduce its payments in some way – for example, through lower interest rates or a temporary moratorium on debt service. Alternatively, it may default and trigger insolvency procedures.

However, in the event of a major macroeconomic shock, such as the break-up of the euro-zone, there may be a justification for government involvement in helping to resolve corporate bankruptcies, not only because the government caused the crisis in the first place, by leaving the euro-zone, but also for other reasons including:

- the scale of corporate losses on bank loans may threaten the solvency of the banking sector;
- the capacity of the legal system may be overwhelmed by the number of insolvency cases;
- companies and creditors may have incentives to delay reaching an agreement, whereas there may be a collective interest in restructuring debts as soon as possible;
- resolution of disputes over private sector debt to foreign creditors may be necessary to achieve a rescheduling agreement on sovereign debt.

Examples of governments which have tried to incentivise private sector debt restructuring include Mexico in 1983 (where the government provided foreign exchange to help corporates cover their external debt arrears), Chile in 1982 (where the government provided subsidies to both companies and

individuals with large foreign currency-denominated debt arrears, following a debt restructuring) and Iceland after its more recent crisis. Also, some governments have encouraged debt restructuring through legal and regulatory reforms and by establishing public entities to coordinate debt restructuring (for example Mexico in 1995 and Indonesia in 1998). Finally, there is a possibility of organising coordinated creditor support for companies during a crisis. A recent example of this is the so-called ‘Vienna Initiative’ of 2009 under which European banks agreed to maintain their exposure to east European entities and recapitalise their subsidiaries in eastern Europe.

There are of course limits to how much financial support governments will be able to offer. The fiscal costs of such incentives can be very large: they were estimated at 20% of GDP in Indonesia after its crisis in 1998, and as much as 55% in Mexico. In the context of a euro-zone sovereign debt crisis, government resources would be limited.

There are also potential costs of government involvement in such corporate debt restructuring: taxpayers’ money may be misallocated; government bail-outs may encourage reckless borrowing in future (‘moral hazard’); and funds may be directed to companies which do not require them and which should, therefore, be allowed to go bankrupt.

It is difficult to make any sensible judgement before the event as to whether or not there would be justification for government support for corporate debt restructuring in the specific case of countries leaving the euro-zone. This would depend on the size of devaluation, the number of countries leaving the euro-zone, the overall financial position of the corporate sector and the government, whether or not debts were redenominated into local currencies etc.

Banks’ debt

One question which the government would need to resolve is whether and how to redenominate the assets and liabilities of domestic banks. In our view, it would be wise to do so because otherwise banks, which in any case

face huge exchange rate and credit losses, would be left with large currency mismatches.

Many companies in Greece, for example, would be likely to default on euro-denominated loans from their banks if loans were *not* re-denominated. This would in turn make it difficult for Greek banks to meet their euro-denominated liabilities, including bank deposits. This problem could be avoided by re-denominating all assets and liabilities into the new local currency, such as the drachma, at the time that the new currency is introduced. The cost of doing so would be borne by domestic depositors, whose savings would be worth less, in euro terms, and by foreign creditors, whose exposure to Greece would fall in value.

One precedent worth considering in this context is Argentina. After its devaluation in early 2002, all dollar-denominated bank assets and liabilities were converted into pesos in an effort to limit losses to the banking sector. (More than half of bank balance sheets were denominated in dollars prior to Argentina's devaluation.²¹)

One drawback of re-denominating bank balance sheets is that depositors would anticipate the reduction in the value of their savings, and would therefore be likely to withdraw their savings from the banks, triggering a bank run.

²¹

In fact, depositors received 1.4 pesos for each dollar of bank deposits, whereas loans were converted at an exchange rate of 1:1. This cushioned the blow for households, but it left the banks with a loss, which the government later had to make good.

Table 10: Debt write-off required to reduce debt to 60% of GDP (as % of 2011 Debt Stock)

	Debt ratio in 2011 (% of GDP)	Debt reduction required based on 2011 data		GDP falls by 10% but no devaluation		30% depreciation plus 10% fall in GDP	
		(a)	(b) as % GDP	(c) as % debt	(d) as % GDP	(e) as % debt	(f) as % GDP
France	87	27	31	37	38	N/A	N/A
Germany	83	23	28	32	35	N/A	N/A
Greece	166	108	64	124	67	203	77
Ireland	109	49	45	61	50	113	65
Italy	121	61	50	74	55	132	69
Portugal	106	56	43	58	49	108	64
Spain	67	7	10	14	19	46	44

Source – IMF, Capital Economics

A10 Selected bibliography

Anghelini, P. and Lippi, F. (2007), “Did Prices Really Soar after the Euro Cash Changeover? Evidence from ATM Withdrawals”, *International Journal of Central Banking*.

Aslund, A. (ed) (1993), “Economic Transformation in Russia”.

Babecký, J., Du Caju, P., Kosma, T., Lawless, M., Messina, J., Rõõm, T., (2009), “Downward Nominal and Real Wage Rigidity Survey Evidence from European firms”, *European Central Bank Working Paper Series Number 1105*, November.

Beuerlein, I. (2007), “Funf Jahre nach der Euro-Bargeldeinführung – War der Euro wirklich ein Teuro?” *Statistisches Bundesamt, Wiesbaden*.

Central Bank of Ireland (2011), “Compositional Effects in Recent Trends in Irish Unit Labour Costs”, *Quarterly Bulletin*, January 2011.

De La Rue (2011), “Supporting the Birth of a Nation: South Sudan”, *De La Rue Exchange Magazine*, Autumn.

Drevina, K., Laurinavicius, K. and Tupits, A. (2007), “Legal and Institutional Aspects of the Currency Changeover following the Restoration of the Independence of the Baltic States”, *ECB Legal Working Paper No 5*, July.

Deutsche Bundesbank (2002), “Circulation of the Deutsche Mark – from currency reform to European Union”, *Bundesbank Monthly Report*, March.

Edwards, S. (2000), “How effective are capital controls?”, *Journal of Economic Perspectives* 13, Winter.

European Central Bank (2007), “How the euro became our money – A Short History of the Euro Banknotes and Coins”.

European Central Bank (2008), “Wage indexation mechanisms in Euro Area countries”, ECB Monthly Bulletin Box, May.

European Central Bank (2011a), “The use of euro banknotes – results of two surveys among households and firms”, ECB Monthly Bulletin Article, April.

European Central Bank (2011b), “The monetary policy of the ECB”, third edition, May.

European Central Bank (2011c), “The European Central Bank, the Eurosystem, the European System of Central Banks”.

Fidrmuc, J. and Horvath, J. (1999), “Stability of Monetary Unions: Lessons from the Break-up of Czechoslovakia”, Centre for European Integration Studies Working Paper B9-17.

Garber, P. and Spencer, M (1994), “The Dissolution of the Austro-Hungarian Empire; Lessons for Currency Reform”, *Essays in International Finance No. 194*, February.

International Monetary Fund (2004), “Report on the Evaluation of the Role of the IMF in Argentina”, Independent Evaluation Office of the IMF, July.

Johnston, R. and Tamirisa, N. (1998), “Why do countries use capital controls?”, IMF Working Paper WP/98/181, December.

Klesta, E. (2003), “Experience in Cross-Border Residential Mortgage Lending in the EU: Examples from Portugal and Greece”, Housing Finance International, December.

Magud, N., Reinhart, C. and Rogoff, K. (2011), “Capital Controls: Myth and Reality – A. Portfolio Balance Approach”, NBER Working Paper 16805.

Mundell, R. (1961), “A Theory of Optimum Currency Areas”, *American Economic Review* 51 (4).

Neely, C. (1999), “An Introduction to Capital Controls”, Federal Reserve Bank of St Louis Review, Nov/Dec.

OECD (2000), “Summary indicators of product market regulation with an extension to employment protection legislation”, Economics Department Working Paper No. 226, April.

Owen, D. and Robinson, D. (eds) (2003), “Russia Rebounds”, International Monetary Fund.

Reinhart, C. and Rogoff, K. (2011), “This Time is Different: Eight Centuries of Financial Folly”, Princeton University Press.

Swan, T. (1955), “Longer-Run Problems of the Balance of Payments” Australian & New Zealand Association for the Advancement of Science paper, reprinted in Arndt, H.W. and Corden, W.M. (eds) (1963), “The Australian Economy”, Cheshire, Melbourne.