European Economic and Monetary Union

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May 14, 1998

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On May 2, 1998 (or more accurately, the early hours of May 3), the leaders of the European Union (EU) took the most significant step towards greater European integration since the signing of the Treaty of Rome in 1957. By giving the green light to the creation of Economic and Monetary Union (EMU) between eleven (the EU11) of the fifteen Member States of the EU, the leaders have taken another major step towards the creation of a unified Europe. This is the latest development in a process of integration that began shortly after World War II and that may one day see the emergence of a Europe that is as politically and economically integrated as the United States is today.

The creation of a monetary union between such a large and disparate group of sovereign nations is unprecedented and will pose enormous challenges for the institution charged with the conduct of monetary policy for the single currency area. That institution will be the European System of Central Banks (ESCB), which will consist of the soon-to-be-established European Central Bank (ECB) and the national central banks (NCBs) of the Member States.

Monetary union will also create new opportunities. The elimination of national currencies will create a single market for goods, labor and capital that will be comparable in size to the United States. Continental-sized markets will in turn likely spur a wave of consolidation and rationalization in the business sector that may see the emergence of larger and leaner businesses that will be better able to compete on a global scale.

Europe's new currency will be known as the euro, and it may one day rival the dollar in international importance.

Overview

My presentation today will give you some background on the process leading up to the creation of a monetary union in Europe. EMU did not spring from the minds of Europe's leaders unheralded, but rather is in many ways the logical outcome of a process of European integration that began after World War II.

After sketching the major milestones on the road to EMU, I will discuss the detailed timetable for the transition that will take place over the next four years. The ECB will commence operations on July 1, 1998, the euro will replace national currencies on January 1, 1999, and in four years time the notes and coins that currently circulate will cease to be legal tender.

We will then look at the criteria that determined which countries get to participate in the first wave. Key among these are the so-called “convergence” criteria. We will see that in many important areas there has been remarkable convergence among the eleven countries that will join EMU, but there are also areas that require more work.

Next I will discuss the monetary policy process under EMU, reviewing the structure of the decision-making bodies and sketching key similarities with the way monetary policy is made in the United States.

And finally I will discuss some implications of EMU for the United States.

The road to EMU

EMU is the latest step on the road towards greater integration in Europe that began with the establishment of the European Payments Union (EPU) in 1950. The creation of the EPU was little more than a technical device to facilitate the reconstruction of Europe following the devastation of World War II. But it can also be seen as the first manifestation of the political will to forge closer bonds between the former belligerents so as to preclude the possibility of any future conflict.

A more substantive step was taken with the formation of the European Coal and Steel Community (ECSC) in 1951, which created a common market in coal and steel between Germany, France, Italy and the so-called Benelux countries (Belgium, Netherlands, and Luxembourg). The creation of the ECSC was supposed to be accompanied by stronger ties in the political and military arenas (which would have seen the creation of, among other things, a European army) but concerns about loss of national sovereignty led to these plans being abandoned.

Instead, the decision was taken to proceed with integration on the economic front, and in 1957 the Treaty of Rome was signed creating the European Economic Community (EEC).

Monetary union between the Member States of what was then known as the European Community (EC) was proposed as long ago as 1970 in the *Werner Report*. The *Werner Report* envisaged a monetary union as being in place by 1980. However, two key developments in the international sphere derailed this first attempt. The first was the breakdown of the Bretton Woods system of fixed exchange rates in August 1971, and the second was the 1973 oil crisis.

The first attempt by the EC to deal with the exchange rate turbulence that followed both of these events, the so-called "snake," rapidly collapsed to an arrangement involving only a few of the Member States. The second attempt, the European Monetary System (EMS), created in 1979, has proved more durable, although it too has been accompanied by a number of major and minor crises. By the mid 1980s the EC had expanded to twelve members, and renewed interest in a formal monetary union culminated in the *Delors Report* of 1989.

The *Delors Report* laid out the basic plan and timetable for monetary union that is now being followed. These proposals were formally incorporated in the Treaty on European Union (TEU) which was agreed upon at a meeting of European Council in Maastricht and signed in February 1992. The Maastricht Treaty also provided for the European Communities to become the European Union.

The Maastricht Treaty was the most comprehensive change in the basic law of the European Community since the Treaty of Rome in 1957. The most important provisions of the Treaty from the point of view of what we are discussing today are those relating to EMU. The Treaty did three things to further monetary integration in Europe. First, it set out a timetable for the establishment of monetary union. Second, it laid down the criteria by which the fitness of countries to participate in monetary union would be determined. And third, it established the institutional framework for the conduct of monetary policy under EMU.

The three stages of monetary union

Following publication of the *Delors Report*, the leaders of the EU decided in June 1989 that Stage One of monetary union should begin on July 1, 1990. The first stage of monetary union saw the complete elimination of capital controls among the Member States of the EU and also increased cooperation between the central banks of the members.

Stage Two, which started on January 1, 1994, marked the real beginning of the transition to EMU. The European Monetary Institute (EMI) was established, and there were substantive changes in the conduct of monetary policy in the Member States. Specifically, there was a ban on the provision of central bank credit to the public sector (i.e., governments could no longer "print money" to finance their deficits), and the process of granting full independence to all central banks in the Member States was begun. Finally, the key preparatory work for Stage Three of EMU was begun. This preparatory work has been coordinated by the EMI for the past five years.

Stage Three of EMU will start on January 1, 1999 with eleven countries fixing their exchange rates, the national currencies of the eleven being replaced by the euro, and the ECB taking over responsibility for monetary policy in the euro area. Some commentators further distinguish between Stage Three A and Stage Three B. Stage Three A is the initial period of monetary union during which the notes and coins of each of the participating states will continue to circulate as non-decimal representations of the euro. Stage Three B then begins with the introduction of euro notes and coins and the withdrawal of national currencies on January 1, 2002. Six months after the start of Stage Three B, that is, by July 1, 2002, at the latest, the old national currencies will cease to have legal tender status.

There are several reasons for the three-year transitional period before the euro acquires a physical form. First, it will take time for the physical payments infrastructure in each of the participating countries to be adapted to accept the new notes and coins. As of 1995, there were some 3.15 million vending machines in the EU, and 130,000 ATMs, all of which will have to be re-calibrated to accept the new currency. Second, there is the magnitude of the task involved in replacing national currencies. Printing enough new banknotes and minting enough new coins to replace all of the existing notes and coins will take time. As of 1994, there were more than 12 billion banknotes in circulation in the EU, as well as 70 billion coins, with a combined weight of 300,000 tons. Minting of coins has already started, with the first euro coins being produced in France last Monday. Finally, the three-year transition period will allow businesses and the general public to familiarize themselves with the new currency before having to use it for all transactions. During the transition period, the “no compulsion, no prohibition” principle will govern the use of the euro in transactions.

The convergence criteria

The architects of the Maastricht Treaty were aware that combining in a monetary union a group of countries as disparate as those in the EU was a risky undertaking. To minimize the risks, the Treaty specifies a variety of criteria that were to be used by the EMI and the European Commission in assessing the eligibility of countries for participation in EMU. There are several criteria set out in the Maastricht Treaty, although the bulk of the discussion in the run up to EMU has focused on the criteria for assessing “sustainable convergence.”

First, the legislation governing the relationship between national central banks and national political authorities has to be consistent with the Treaty provisions for the ESCB. What this means in practice is that national central banks must have full independence from national political authorities.

Second, the Treaty mandates the achievement of a reasonable degree of price stability. This is determined in practice by assessing the inflation performance of each country relative to the inflation performance of the three best-performing countries.

Third, the Treaty requires that public finances be in good shape. This is assessed in terms of the debt-to-GDP and deficit-to-GDP ratios. For both of these indicators firm numerical target values were established, although with enough flexibility to allow states credit for effort.

The fourth criteria relates to financial markets' perceptions of the degree of convergence achieved between the participating states and establishes a range for long-term interest rates.

The fifth and final criteria requires that candidate states have observed the normal fluctuation margins of the Exchange Rate Mechanism (ERM) of the EMS for at least two years prior to joining the monetary union without devaluing.

The Treaty also requires the EMI and the European Commission to look at a variety of other developments in assessing the degree of sustainable convergence.

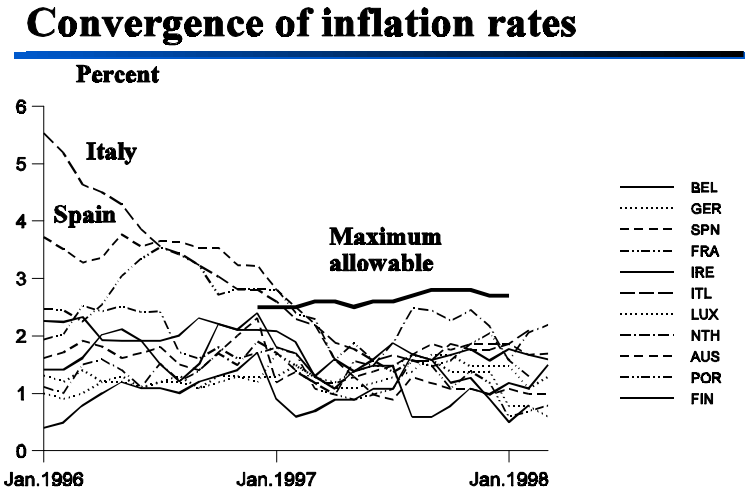
The convergence reports published by the EMI and the European Commission in March of this year assessed the extent to which candidate countries satisfied the convergence criteria, and found that essentially all of the EU members satisfied the bulk of the criteria for participation in EMU. However, Denmark and the United Kingdom will not participate in the first round, having negotiated "derogations", even though they satisfy most of the criteria. Likewise Sweden will not participate, even though it too meets almost all of the criteria for membership. The only country that wishes to participate but failed to meet the convergence tests is Greece. However, the Greek government has signaled its determination to join as soon as possible, ideally by the time the euro notes and coins are introduced in 2002. To this end, the Greek government added the drachma to the ERM in March of this year.

Convergence

The convergence criteria laid down in the Maastricht Treaty are intended to ensure that once countries enter into monetary union they will be able to live with the discipline that this implies. There can be little doubt that there have been very genuine attempts on the part of the eleven countries that will make up the first wave of EMU to get their houses in order, as an examination of the data shows.

The first convergence criterion laid down by the Treaty requires that participating countries have attained a high degree of price stability. This is taken as meaning that the inflation rate does not exceed by more than 1½ percentage points that of the three best-performing states in terms of price stability. There has been remarkable convergence in inflation rates in the EU11 since the Maastricht Treaty came into force. Figure 1 shows the performance of the EU11 over the past two and a half years using comparable data for all countries. Since early 1997, the Mediterranean countries (Italy, Spain and Portugal) that began the decade with the highest inflation rates, have had inflation performances that comfortably meet the Treaty requirements.

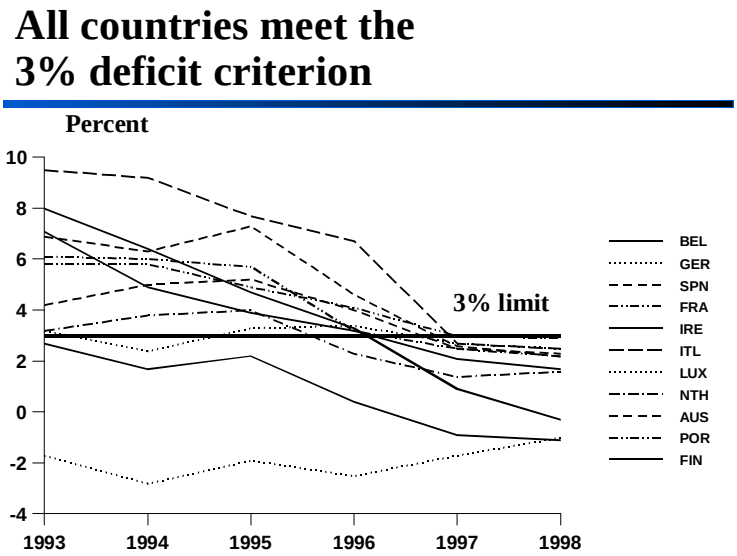
Figure 1



The second convergence criterion relates to the sustainability of the government's fiscal position. This in turn is assessed on the basis of two key statistics. First, deficits should be no more than 3% of GDP. Second, the debt-to-GDP ratio should be no more than 60%.

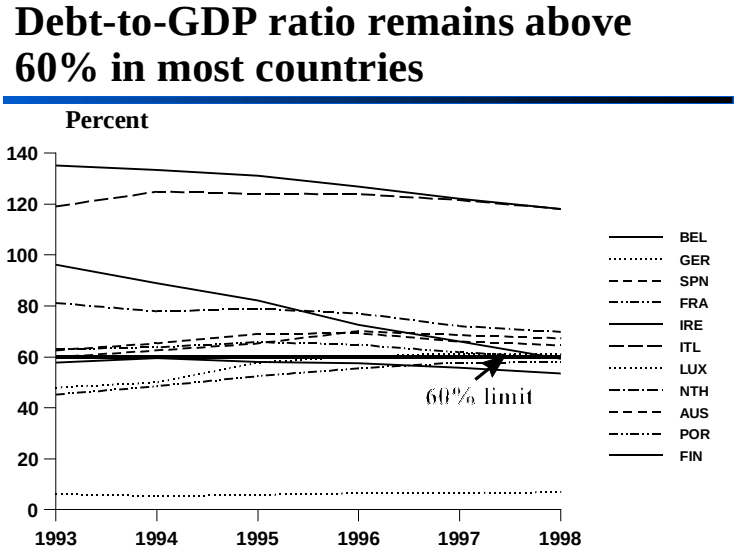
Looking at the first criterion, all of the EU countries have gone to extraordinary lengths to get their deficits below the 3% reference value so as to qualify for EMU. The process of fiscal consolidation has been quite drastic in some countries. In Italy, for example, the deficit declined from 11.1% of GDP in 1990 to 2.7% in 1997 and is projected to be 2.5% in 1998. Indeed, some critics of EMU have argued that the attempt to meet the Maastricht criteria for participation in EMU explains the relatively poor performance of Europe over the past decade. We will return to this point below.

Figure 2



The second fiscal criterion states that the debt-to-GDP ratio should be no more than 60%. Here progress has been less impressive. Two countries that will participate in the first round of EMU, Italy and Belgium, still have debt-to-GDP ratios in excess of 120%, that is, more than twice the reference value, although the ratios have been declining over time. Indeed, there has been a downward drift in the debt-to-GDP ratio in almost all of the countries that will make up the first round of EMU, with the exceptions of France and Germany. However, in the case of France the ratio remains below the critical reference value, while in Germany it exceeds the reference value by only 1.3 percentage points.

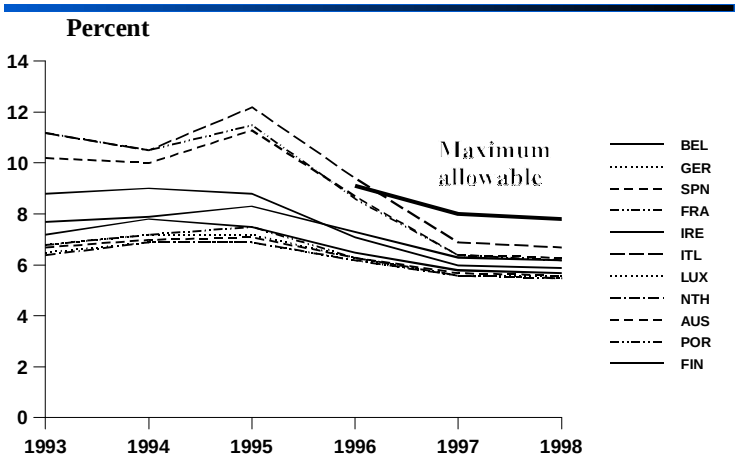
Figure 3



The Treaty requires that the durability of convergence be assessed on the basis of the levels of long-term interest rates. This is specified as meaning that the average long-term nominal interest rate during the reference period not exceed by more than 2 percentage points the levels in the three best- performing Member States in terms of price stability. As Figure 4 shows, all of the countries meet this criterion easily. Indeed, this criterion helped to create something of a virtuous circle for countries trying to qualify for EMU, as markets lowered long-term interest rates to German levels on the expectation of countries qualifying, which in turn made it easier for the countries to meet the fiscal criteria for membership.

Figure 4

Convergence of long-term interest rates



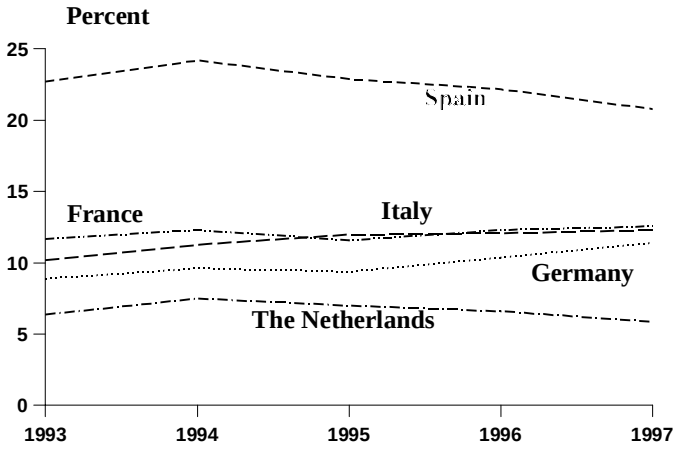
Convergence?

However, there is more than one way to assess whether countries have converged to a sufficient extent to participate successfully in a monetary union. In its convergence report the EMI identified three areas of ongoing concern: First, the high and persistent levels of unemployment in the states that will take part in Stage Three of EMU; second, the high debt ratios; and third, the long-run demographic trends.

The biggest challenge facing Europe today, and especially those countries that will take part in EMU, is without question, unemployment. In France, Germany, and Italy, the three largest economies among the EU11, approximately one worker in eight is unemployed, while in Spain, the next largest economy, unemployment stands at one-fifth of the labor force. While some commentators have attempted to attribute some or all of this unemployment to the stringent fiscal and monetary policies that have been implemented to allow countries to qualify for EMU, there is no doubt that the bulk of this unemployment is structural in nature and can only be addressed by fundamental labor market reforms. Absent such reforms, it is not unreasonable to expect that there might at some point in the future be pressure on the ECB to conduct monetary policy in a manner to help alleviate unemployment, despite the fact that few central bankers in Europe (or elsewhere) believe that there is much that monetary policy can do about unemployment in the long run. The unemployment problem is unlikely to be helped by recent legislation mandating a 35 hour work week in France; similar proposals are under active consideration in Italy and Spain.

Figure 5

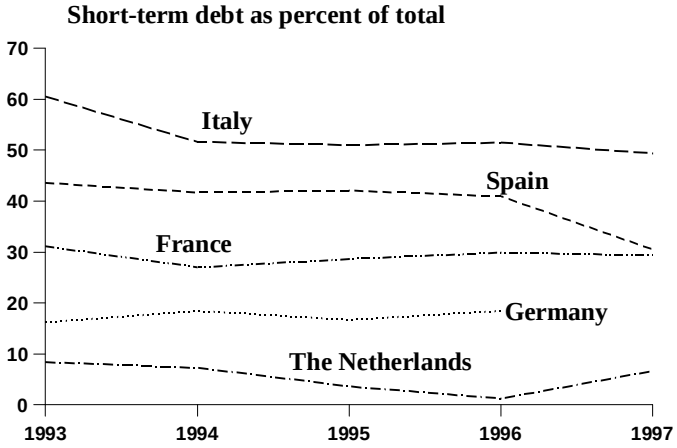
High and persistent unemployment rates



The fiscal criteria (3% deficit ratio, 60% debt-to-GDP ratio) have been met to greater or lesser extent, but are incomplete in many ways. To begin with, to the extent that the criteria have been met it has been a relatively recent phenomenon and it is not yet clear that a culture of stability is well established in all of the participating states. Also, many countries were only able to meet the deficit criterion for 1997 with the help of some creative one-off accounting practices. For example, in Italy these one-off measures amounted to 1% of GDP (including a one-off euro tax to be repaid at some date in the near future); in France the government was able to meet the deficit criterion partly with the help of a one-off payment from France Telecom in return for the assumption of the latter's pension liabilities. France and Italy were not alone in having recourse to such measures to meet the deficit criterion. Furthermore, to the extent that the debt-to-GDP criterion has been met, it has only been through a generous interpretation of the Treaty provisions. Thus the debt-to-GDP ratio in both Belgium and Italy remains at more than twice the reference value laid down in the Treaty. A potentially more serious problem concerns the short-term nature of much of this debt, and especially how countries differ in this regard. In Italy, almost half of the stock of debt outstanding has a maturity of less than one year, while in Germany and France the comparable figures are 20% and 30%.

Figure 6

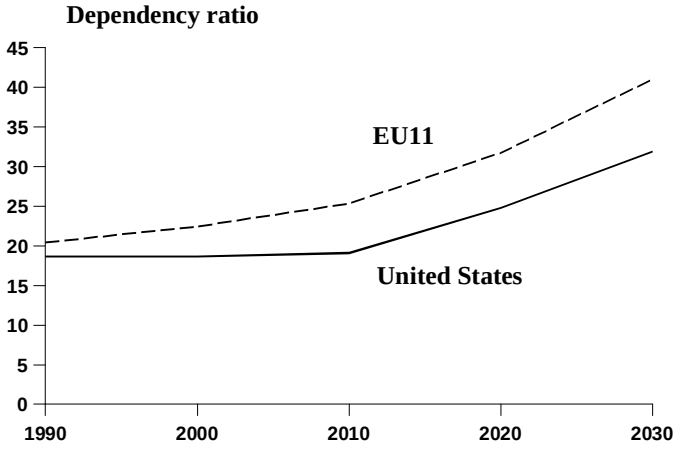
Composition of debt a source of conflict?



Finally, the EMI drew attention to the pensions timebomb that is lurking in the background for the EU11. This is essentially the same as the problem that the U.S. is facing with the underfunding of the Social Security program, although the problem is worse in Europe. Almost all of the EU11 (with the exception of Ireland) face dramatic increases in the age-dependency ratio in coming decades. Figure 7 shows the population aged 65 and older as a percentage of the working-age population for the EU11 and for the U.S. Note that in the U.S. the problem with adverse demographics does not begin to bite until after 2010. However, the EU11 already has a population that is slightly older on average than that in the U.S. and this population will age a lot more rapidly. Two countries where the aging will be particularly severe are Germany and Italy. In fact, between now and 2010, the population of the EU11 is projected to fall by 2 million; over the same period, the population of the U.S. will grow by 29 million.

Figure 7

Aging of EU11 population more rapid than in U.S.



Is Europe an optimum currency area?

Since EMU was first proposed, there has been no shortage of academic critics pointing out the dangers of such an undertaking. In the United States two of the most prominent critics have been Martin Feldstein of Harvard University and Milton Friedman of Stanford University. The essential point made by most of the critics is that Europe as a whole does not constitute what economists refer to as an optimum currency area.

The theory of optimum currency areas establishes the conditions under which a group of countries (or regions within a country) may share a single currency without incurring problems as a result. The reason sharing a common currency may be costly is that it deprives states of the ability to alter the nominal exchange rate of their currency in response to a shock. The United States is often cited as an example of an optimum currency area. There are many ways of dividing the U.S. into regions, but one particularly relevant division is into the twelve Federal Reserve Districts. The dollar bills bearing the seals of the twelve regional banks can be viewed as twelve separate currencies that exchange for one another at permanently fixed exchange rates, much as the exchange rate between the French franc and the Deutsche mark will be irrevocably fixed on January 1, 1999.

Consider what the options were for Texas when oil prices collapsed in 1986. One option would have been to simply devalue the Dallas or Texas dollar, making Texas' exports cheaper, thereby mitigating the adverse effects of the shock on the Texas economy. Of course, this is not an option because Texas is bound

irrevocably in a monetary (and political) union with the rest of the U.S. Thus, the way the 1986 oil price shock was handled was through out-migration and wage declines: unemployed workers simply upped and went to where the jobs were, and those that remained saw their wages grow less rapidly than in the rest of the U.S. This is how regions in the U.S. typically deal with shocks, whether the rust belt of the upper mid-West in the early 1980s, Texas in the mid 1980s, or California and New England in the early 1990s. The other key mechanism whereby regional shocks are mitigated in the U.S. is via transfers from the Federal government (in the form of unemployment benefits and lower income taxes).

It is the fact that unemployed workers can so easily relocate to different parts of the U.S., and the fact that wages are flexible, that makes many economists believe that the U.S. is an optimum currency area. It is precisely because the migration option is not so freely available in Europe, and wages are a lot less flexible, that makes retention of the nominal exchange rate a potentially important tool for handling shocks. There are a variety of features of the labor and housing markets in Europe that make migration difficult. In addition there are the barriers of language and culture which are more difficult to overcome. Nor is there a large central government at the European level that can make transfers to distressed regions to help them overcome transitory shocks.

The theory of optimum currency areas is one of the few tools available to economists for assessing the viability of EMU. However despite the magnitude of the undertaking that EMU represents, the theory has evolved little since its original articulation in the early 1960s. To start with, the theory is predicated on the assumption that changes in the nominal exchange rate have real effects, a notion that has been challenged by some economists in recent years. More significantly, the architect of the theory of optimum currency areas, Robert Mundell, recently pointed out in a series of articles in the *Wall Street Journal* that a policy of devaluation in response to adverse shocks cannot work indefinitely. While a surprise devaluation may work once or twice, as soon as workers and investors come to anticipate the use of devaluation as a tool for dealing with shocks the tool will lose its effectiveness.

There is also the more substantive fact that the pre-monetary union behavior of both the public and private sectors is a bad predictor of their behavior once the monetary union is in place. EMU constitutes a regime change for monetary policy in Europe, and one thing modern macroeconomics teaches is that the behavior of workers and investors will change when the policy regime changes. Just as we cannot expect to be able to predict the behavior of a football player following a change in the rules of the game by simply looking to his past behavior, so too is it difficult to predict what will happen when the monetary rules of the game change in Europe.

Monetary policy under EMU

EMU will fundamentally change the way in which monetary policy is conducted in the participating states. Responsibility for monetary policy will shift from the national central banks to the ESCB, which will, in turn, be governed by the decision-making bodies of the ECB. The ECB will begin operations on July 1, 1998, and will take over responsibility for monetary policy for the EU11 on January 1, 1999.

Structure of the monetary policy making institutions

The Maastricht Treaty established the institutional arrangements for the conduct of monetary policy under EMU. The Treaty provides for the establishment of the ESCB which in many ways is modeled on the Federal Reserve System. At the top of the ESCB will sit the ECB, headquartered in Frankfurt and playing a role similar to that of the Board of Governors in Washington. The various NCBs will play a role similar to that of the regional Federal Reserve Banks in the Federal Reserve System. Monetary policy decisions will be made by the ECB Governing Council, which will in turn be made up of the Executive Board of the ECB and the governors of the NCBs. The Executive Board of the ECB will consist of the President and Vice President of the ECB, and four other members. The President of the ECB will also chair the

Governing Council, and will in essence play a role similar to that played by the Chairman of the Board of Governors. Members of the Executive Board will be appointed for non-renewable eight-year terms.

While there are many similarities between the structure of the ESCB and the Federal Reserve System, there are also some important differences. For example, the Executive Board of the ECB will be in a minority on the Governing Council, unlike the Board of Governors which enjoys a permanent majority on the FOMC. Also, all of the NCBs will have a vote in all of the policy decisions of the Governing Council, unlike the situation with the FOMC where most Federal Reserve Banks only get to vote every two or three years.

The objective of monetary policy

There is no ambiguity in the Maastricht Treaty about what the objective of monetary policy will be. To quote from Article 105 of the Treaty "The primary objective of the ESCB shall be to maintain price stability." This mandate is qualified somewhat by an obligation to "support the general economic policies in the Community" but this support should in no way prejudice the objective of price stability. The provisions of the Treaty with respect to the objectives of the ESCB are modeled on the Bundesbank Act and stand in marked contrast to the more ambiguous dual mandate of the Federal Reserve.

Independence

The ECB will arguably be the most independent central bank in the world. The fact that its charter is an international treaty that can only be changed with the unanimous consent of all of the signatories will make it very difficult to exert political pressure on the ECB. Furthermore Article 107 of the Treaty states that "...neither the ECB, nor a national central bank, nor any member of their decision-making bodies shall seek or take instructions from Community institutions or bodies, from any government of a Member State or from any other body." Furthermore, the Treaty also prohibits Community institutions and bodies and the governments of the Member States from seeking to influence the ECB or the NCBs.

Note, however, that the President of the Council (that is, one of the heads of state or government, or one of the national finance ministers) and a member of the European Commission (the executive branch of the EU) will have the right to participate as non-voting members in meetings of the Governing Council of the ECB. Furthermore the President of the Council will have the right to submit motions for deliberation to the Governing Council of the ECB.

Strategy

A strategy for monetary policy can be defined as a set of procedures whereby the central bank responds to developments in the economy to attain its final objective. The EMI has given a lot of thought to potential strategies for the ECB. Among the options considered were strategies that target the exchange rate, an interest rate or nominal GDP. In the end all of these were rejected in favor of either monetary targeting or inflation targeting. As we speak, a final choice has yet to be made. However, it is instructive to consider the competing merits of the two strategies.

Among the key attractions of monetary targeting are "that it clearly indicates a responsibility of the central bank for developments that are more directly under its control." It would also have certain attractions in terms of continuity with regard to the strategy pursued by the Bundesbank, and might therefore help the ECB inherit some of the latter's credibility. The primary drawback is the high degree of uncertainty about the likely behavior of monetary aggregates in the euro area following the start of monetary union.

Inflation targeting is attractive because it highlights the ultimate responsibility of the central bank for price stability. Indeed, many newly independent central banks, such as the Bank of England and the Reserve Bank of New Zealand, have opted for inflation targets as a means of rapidly acquiring credibility for their commitment to price stability. The primary drawback of an inflation-targeting strategy is the difficulty of forecasting inflation at the relevant horizons. Because monetary policy actions today only affect inflation with a long and variable lag (of eighteen months to two years) an ability to forecast inflation accurately at long horizons is crucial to the successful implementation of an inflation targeting strategy.

However there is a significant degree of overlap between the two strategies in terms of their implications for the day-to-day conduct of monetary policy. Where they differ most is in their implications for the ECB's communication policy, that is, how the ECB will go about explaining its actions to the general public. In view of the many uncertainties that will accompany the start of monetary union, it would not be surprising if the ECB were to opt for a strategy that combines the best elements of inflation targeting and intermediate money targeting, at least until such time as the stability of money demand or the forecastability of inflation is well established for the euro area.

The tools of monetary policy

The policy instruments available to the ECB for the conduct of monetary policy are threefold: first, it will engage in open market operations; second, it will offer standing facilities; and third ,it may require credit institutions to hold minimum reserves.

Open market operations will play a central role in the conduct of monetary policy. The ESCB will have five types of instrument available for the conduct of open market operations, of which the most important will be reverse transactions. The ESCB will also have the option of using outright transactions, issuing debt certificates, foreign exchange swaps and collecting fixed-term deposits. All open market operations will be initiated by the ECB, but will be conducted through all of the NCBs. The ECB will decide on the instrument to be used in all open market operations, and also on the terms and conditions for their execution.

Standing facilities will be offered to provide and absorb overnight liquidity, signal the general stance of monetary policy and bound overnight market interest rates. The facilities are a marginal lending facility and a deposit facility and will be available to eligible counterparties on their own initiative as long as they fulfill the relevant conditions. Exactly which institutions will be able to access the standing facilities depends on whether reserve requirements are imposed or not. If the ECB does elect to impose a reserve requirement, then only those institutions subject to the requirement may access the standing facilities (and participate in open market operations based on standard tenders). If no reserve requirements are imposed then the range of counterparties with whom the ESCB will deal in conducting monetary policy will broadly correspond to credit institutions in the euro area.

Article 19 of the Statute of the ESCB allows the ECB to require credit institutions to hold minimum reserves. The final decision on whether such reserve requirements will be imposed, what their level will be, whether they will pay interest and so on, will be taken by the Governing Council of the ECB. At present the EMI is developing various proposals so as to allow the ECB Council to take a decision soon.

The ESCB will transact in a wide range of financial assets in conducting it monetary policy operations. These assets are not necessarily restricted to the debt liabilities of national governments, but are required to satisfy certain criteria so as to protect the ESCB from the risk of losses on its monetary policy operations.

Accountability and transparency

As we have already noted, the ECB will be the most independent central bank in the world. The provisions of the Maastricht Treaty in terms of its mandate and institutional independence mean that the ECB will not be torn between pursuing multiple objectives, or subject to political pressures to take what it views as inappropriate policy actions. The Treaty imposes minimal reporting obligations on the ECB, requiring only that it submit an annual report to the European Parliament. The Treaty notes that the ECB "may" decide to publish its decisions, recommendations and opinions, but does not impose any obligation in this regard. The Treaty also provides for the President of the ECB and other members of the Executive Board of the ECB to be heard by the relevant committees of the European Parliament. Recent press reports suggest that the President will be called to testify twice a year before a special committee of members of the European Parliament and chairmen of the finance committees of the 15 national parliaments.

In its report "*The Single Monetary Policy in Stage Three: Elements of the monetary policy strategy of the ESCB"* the EMI notes that a public announcement of a quantified definition of "price stability" should be an integral component of whatever strategy the ECB chooses to pursue. In practical terms this might mean announcing a target range for inflation of 0-2% as there seems to be a consensus among central banks that measured inflation in this range is broadly consistent with price stability. The EMI report further recommends that the ESCB should announce specific targets against which its performance can be assessed.

Issues that have yet to be decided on include when and how monetary policy directives will be published, and whether and when minutes of monetary policy meetings will be published.

What are the implications for the United States?

Given the degree of uncertainty about how monetary union will affect Europe, it should not be too surprising that there is relatively little that we can say with any precision about how EMU will affect the United States. Ultimately, EMU may end up teaching us more about economics, than economics can currently teach us about EMU.

One of the most immediate effects of EMU will be to accelerate the development of the single market in Europe, and make it a lot easier for U.S. corporations to do business there. Instead of having to worry about eleven different currencies, there will be only one currency for an area that will account for about one-fifth of world output and about one-fifth of world trade as well. (See *Figure 8*). The single market will be enhanced by greater transparency in pricing, which some commentators believe will foster greater competition across the EU and ultimately breed stronger industrial and commercial enterprises. The creation of a single capital market will also address one of the greatest problems small companies in Europe have faced in trying to grow and develop.

Figure 8

Euro zone comparable in size to U.S.

	U.S.	EU11	Japan
Population	**265.6 million**	**289.8 million**	**125.9 million**
GDP	**$7,819.3 billion**	**$6,303.6 billion**	**$4,223.4 billion**
Exports	**$622.9 billion**	**$540 billion**	**$411.2 billion**
Imports	**$817.8 billion**	**$486 billion**	**$349.5 billion**
Foreign Exchange Reserves	**$30.8 billion**	**$300.1 billion**	**$207.9 billion**
Unemployment	**4.9 %**	**12.4 %**	**3.4 %**

In the longer run, the success of the euro may pose a challenge to the international role of the dollar. A credible euro could be an attractive alternative to the dollar as a vehicle currency for international transactions and as a reserve currency, and this could create interesting problems in the area of monetary control for the Federal Reserve System. As with everything else in this debate, whether and how soon the euro is likely to challenge the dollar as the world's major reserve currency is subject to a lot of uncertainty. In one camp there are those who argue that the forces of inertia favor continued use of the dollar for a long time to come. On the other hand there are the euro-enthusiasts who believe that the euro could come to rival or even replace the dollar in as little as five years. And in the middle are those who argue that it is simply too soon to tell whether the euro has this potential. A lot depends on how successful the ECB is at managing the difficult first years. Perhaps the most plausible scenario that eventually the euro will come to play Airbus to the dollar's Boeing.

Parenthetically, I might note that one area where the euro may pose a serious challenge to the dollar is as the currency of choice for the underground economy. As you know the highest denomination note issued by the Federal Reserve System is the $100 bill. The planned denominations of euro notes include a 500 euro note, worth about $550 at current exchange rates. Some academic economists have drawn attention to the attractiveness of the high-denomination euro notes for illicit transactions, and argued that the existence of these denominations will make the euro more attractive that the dollar for these purposes. Insofar as the euro does succeed in this regard, there would be a loss of seigniorage income for the U.S., but the exact amount (or even the order of magnitude) is anybody's guess.

Conclusions

EMU has gone from being a remote and unlikely possibility to a reality in the space of less than a decade. The sceptics who doubted the will of Europe's leaders to see the project realised have been confounded. The will that has made EMU a reality will also help it weather the inevitable patches of rough sailing that lie ahead. However, because the project has been driven primarily by politics rather than economics, it will likely face several difficult years in establishing itself as enduring. The ECB will also face a major challenge in formulating and conducting monetary policy for the euro area, establishing credibility, and selling its policy to the public.

By embarking on EMU despite the doubts of many professional economists, the leaders of the EU are taking a huge gamble. There are very real risks that the project will generate tensions, but there is also the very real possibility that EMU will serve as a catalyst to reinvigorate Europe for the twenty first century.

EMU is an enterprise of historical significance which will fundamentally alter international monetary arrangements in the twenty-first century. In the words of one of the sceptics, it is “the most far-reaching European political event of the twentieth century.” That is saying a lot. At present, only eleven of the fifteen members of the EU are taking part in this “awfully big adventure” but as the project proves itself it is inevitable that all fifteen states will take part, and eventually the countries of Eastern Europe (Hungary, Poland, the Czech Republic, Estonia, Slovenia and Cyprus) currently negotiating membership of the EU.