Southwest Economy

The Euro Cash Changeover

At midnight on Dec. 31, 2001, for the first time in history, a currency that had not been debased through inflation had its legal tender status revoked. From its introduction in 1948, the German mark was one of the world's strongest currencies and was viewed as one of the great achievements of the postwar Bonn Republic. Its replacement by the euro signifies a major milestone in European integration. On Jan. 27, the mark was joined by the Dutch guilder, and on Feb. 9 the Irish punt disappeared into history. The French franc became a thing of the past on Feb. 17, and at midnight on Feb. 28 all of the legacy currencies of the 12-nation euro area ceased to be legal tender. The euro is now the only legal tender in most of Western Europe.

The introduction of euro banknotes and coins, which began on Jan. 1 of this year, was a great success. The predictions of long lines at retail outlets and railway stations were not borne out, and the European public has embraced the new currency with an enthusiasm that surprised even its most ardent supporters. There were glitches, but they were few. The cash changeover, far from marking the beginning of the end of economic and monetary union (EMU) as some had expected, simply marks the end of the beginning.

(Continued on page 2)

The Economic Impact of Biotechnology

It's as daunting a task today to divine how biotechnology will affect future economic activity as it might have been for economists in the 18th, 19th and 20th centuries to forecast how the steam engine, electricity and the microchip would influence and eventually transform the world economy. With the assistance of mind-boggling inventions, humankind's bucolic existence has morphed into a world that our agrarian ancestors would scarcely recognize. Biotechnology may change our world as much.[1]

Even though the bioscience industry has been around for 25 years and the gargantuan task of mapping the human genome is complete, it's still not clear to what extent life science technology will affect our economy. Some observers have already labeled this the "Biological Century," betting that advances in the life sciences will yield changes more momentous than those of electricity and computers. Such predictions may be overinflated, but bio-

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In 1950, when French Foreign Minister Robert Schuman proposed the first steps toward greater integration between Germany and France, he noted that

> "Europe will not be made all at once, or according to a single plan. It will be built through concrete achievements which first create a *de facto* solidarity."

These achievements were modest at first: sharing of sovereignty over coal and steel (the raw materials of industrial-age warfare) and later the creation of a common market. Over the years the integrationists' ambitions have grown, and so have their achievements: the creation of a single market for goods, labor and capital; the transformation of the European Economic Community into the European Union (EU) of today; expansion from six to 15 members; and now the completion of economic and monetary union. In fewer than five years we may see the EU expand to 25 members, and before the end of the decade the euro may well be the only currency used in all of Europe and may even have made tentative steps into Asia. The completion of EMU is a concrete achievement *par excellence* and one that fundamentally alters the character of the European Union.

The Scale of the Task

The euro has been around for slightly more than three years. During that time, it has not had a physical form, existing only as a unit of account, while the notes and coins of the legacy currencies continued to circulate as the medium of exchange. A three-year transition between the launch of EMU and the introduction of the notes and coins, though not specified in the Maastricht Treaty governing monetary union, was deemed necessary in part to allow sufficient time for production of the new currency. Approximately 15 billion euro banknotes (with a face value of about €635 billion) had to be produced to replace the legacy currencies' banknotes. Likewise, some 50 billion euro coins (with a face value of about €15.75 billion) had to be minted to be ready for the Jan. 1 launch date.

Once production was nearly complete, there remained the formidable logistical challenge of distributing the notes and coins to financial institutions and other businesses across the euro area to facilitate a smooth transition. In addition, the payments infrastructure (the 200,000 ATMs, the 3.5 million-plus vending machines and so on) had to be recalibrated to dispense and accept the new currency.

As large as these tasks were, they probably didn't require three years. Production of the euro banknotes began in 1999 and peaked at more than one billion notes per month in summer and fall of 2001. Coin production began even earlier, in mid-1998. A more important reason for the three-year transition was to allow businesses and consumers time to familiarize themselves with the new currency before being forced to use it in all transactions.

Characteristics of the Notes and Coins

The denominational structure of the euro follows a standard 1-2-5 (or binary-decimal) pattern, with denominations of 1 cent, 2 cent and 5 cent, 10 cent, 20 cent and 50 cent, and so on up to 500 euro. The highest denomination coin is the €2 coin, and the lowest denomination note is the €5 note. Notice that the definitional denomination, €1, is a coin. The coins all have a common European side, and the reverse side features national designs. Unlike the banknotes, which are issued by the European Central Bank (ECB) via the national central banks, the euro coins are issued by the national treasuries of the participating countries, subject to the ECB's approval. Coins issued by national governments will be legal tender throughout the euro area.

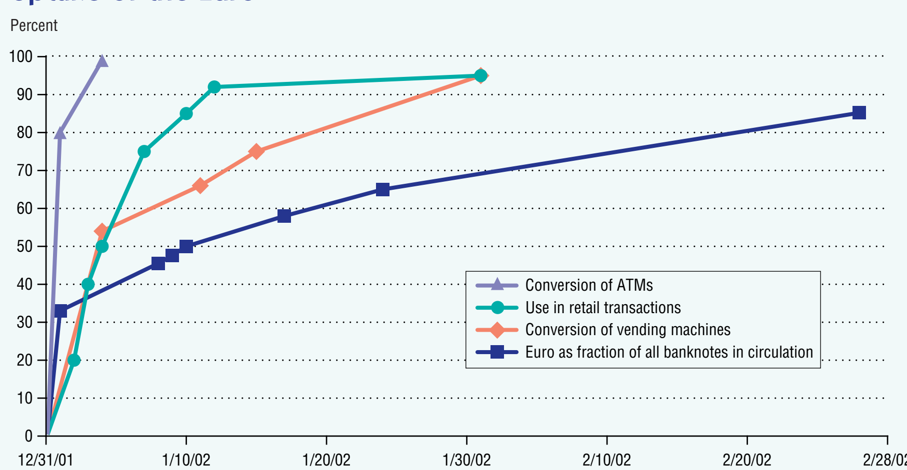
In contrast, euro banknotes don't have any distinguishing national features, apart from a letter code at the beginning of the serial number to denote where the note was printed. The front features windows and gateways from different architectural styles (symbolizing openness), while the reverse side features bridges (signifying cooperation). (See the box titled "The Euro Banknotes.")

The general public's uptake of the euro notes and coins proceeded somewhat quicker than expected. Banknotes had been distributed (or "frontloaded") to financial institutions throughout the euro area as early as last September, and financial institutions in turn distributed (or "sub-frontloaded") banknotes and coins to the retail sector and other cash businesses in the last months of 2001. Starter kits of euro coins were distributed to the general public in mid-December, and at midnight on Dec. 31, ATMs across the euro area started disbursing euro banknotes.

Of the 200,000 or so ATMs in the euro area, more than 80 percent had been converted to issue euro on Jan. 1; by Jan. 3, the proportion was 97 percent (*Chart 1*). About half the coin-operated

Chart 1

Uptake of the Euro



SOURCES: European Central Bank; European Commission Changeover Information Network.

Table 1

Key Dates in the Withdrawal of Legacy Currencies

	End of legal tender	Exchange at banks after end of legal tender	Redemption at central bank after end of legal tender
Austria	Feb. 28, 2002	To be decided individually by banks after Feb. 28, 2002	Indefinitely
Belgium	Feb. 28, 2002	Dec. 31, 2002	Notes: Indefinitely Coins: End of 2004
Finland	Feb. 28, 2002	To be decided individually by banks	Feb. 29, 2012
France	Feb. 17, 2002	June 30, 2002	Notes: Feb. 17, 2012 Coins: Feb. 17, 2005
Germany	Dec. 31, 2001	At least until Feb. 28, 2002	Indefinitely
Greece	Feb. 28, 2002	Positive (to be decided individually by banks)	Notes: March 1, 2012 Coins: March 1, 2004
Ireland	Feb. 9, 2002	For a period not yet specified	Indefinitely
Italy	Feb. 28, 2002	Banks to decide in February 2002	March 1, 2012
Luxembourg	Feb. 28, 2002	June 30, 2002	Notes: Indefinitely Coins: End of 2004
Netherlands	Jan. 27, 2002	Dec. 31, 2002	Notes: Jan. 1, 2032 Coins: Jan. 1, 2007
Portugal	Feb. 28, 2002	June 30, 2002	Notes: Dec. 30, 2022 Coins: Dec. 30, 2002
Spain	Feb. 28, 2002	June 30, 2002	Indefinitely

vending machines in the euro area had been converted to accept euro on Jan. 4, and by the end of January the proportion was close to 95 percent. The euro was being used in more than half of all retail transactions after only three business days and exceeded the 90 percent mark by Jan. 12. The euro replacement ratio, which is the ratio of euro banknotes in circulation to the total of euro and national banknotes in circulation, hit 50 percent on Jan. 10 and was 65 percent on Jan. 25. By the end of February, national banknotes made up less than 15 percent of the stock of notes in circulation. Some may never be exchanged for euro because they have been lost or destroyed or will be kept as souvenirs or collector's items.

Although all of the legacy currencies ceased to be legal tender at the end of February, the currencies can still be redeemed for euro at commercial and national central banks. However, only four countries (Austria, Germany, Ireland and Spain) will redeem national coins and banknotes indefinitely. Belgium and Luxembourg will redeem old banknotes indefinitely but will stop redeeming coins at the end of 2004. The Netherlands will redeem notes until 2032 but will cease redeeming coins in 2007. The other countries have set various cutoff dates for redemption of notes, with the soonest being 10 years from now. Table 1 gives the complete details.

Was the Cash Changeover Inflationary?

A common fear among European consumers was that businesses would take advantage of the cash changeover to raise prices surreptitiously. And the most recent data on inflation in the euro area suggest there may be something to this. Euro area inflation in January was 2.7 percent, up from 2 percent in December.

Usually when a new currency is introduced, the conversion rate makes the new currency some convenient decimal multiple of the old currency. The last time such a reform was undertaken in Europe was in France in 1960, when the old franc was replaced by the new "heavy" franc at a rate of 1 new franc to 100 old francs. When the introduction of a new currency simply entails dropping a few zeros, shoppers can easily compare prices in the old and new currencies.

However, the irrevocable exchange rates between the euro and most of the legacy national currencies are far from being simple multiples. One euro is equal to 1.95583 German marks, 6.55957 French francs, 0.787564 Irish punts and so on (*Table 2*); hence consumers' fear that retailers would round prices up. There is anecdotal evidence that the price of a pint of Guinness in Dublin is now €3.15, instead of the €3.11 it should be if converted at the fixed exchange rate. However, the cost of a one-way subway ticket from the Frankfurt airport to downtown Frankfurt is now €3.10, instead of the €3.12 it would have cost if the old fare were converted at the fixed exchange rate.

Standard economic theory tells us that this kind of currency reform should not lead to any significant change in the price level, up or down. For every example of a price rounded up, there is sure to be a

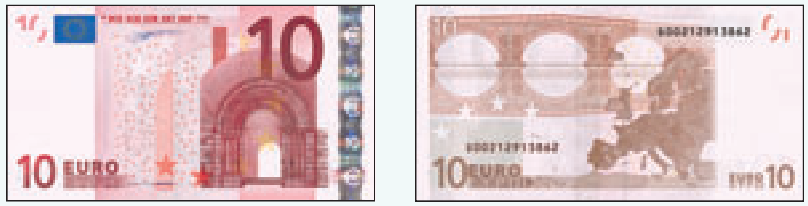
Table 2

The Irrevocable Exchange Rates

1 euro =	13.7603 Austrian schilling
	40.3399 Belgian franc
	2.20371 Dutch guilder
	5.94573 Finnish markka
	6.55957 French franc
	1.95583 German mark
	340.750 Greek drachma
	0.787564 Irish punt
	1,936.27 Italian lira
	40.3399 Luxembourg franc
	200.482 Portuguese escudo
	166.386 Spanish peseta

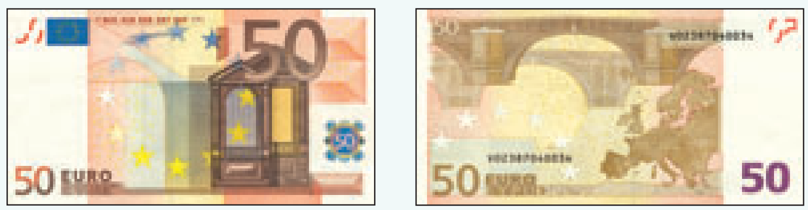
The Euro Banknotes

€5 note
Size: 120 x 62 mm (4.75 x 2.4 in.)
Architectural period: Classical

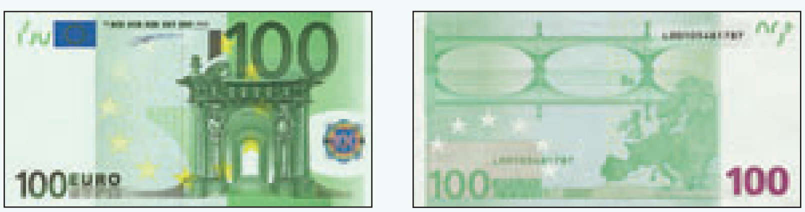


€10 note
Size: 127 x 67 mm (5 x 2.6 in.)
Architectural period: Romanesque

€20 note
Size: 133 x 72 mm (5.2 x 2.8 in.)
Architectural period: Gothic

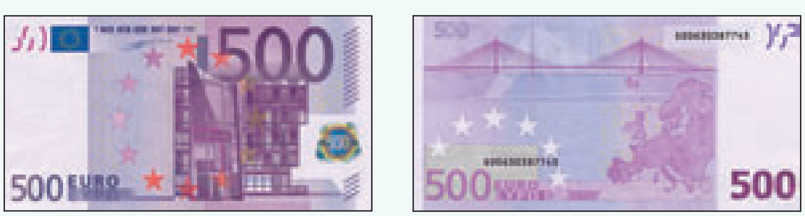


€50 note
Size: 140 x 77 mm (5.5 x 3 in.)
Architectural period: Renaissance



€100 note
Size: 147 x 82 mm (5.8 x 3.2 in.)
Architectural period: Baroque and rococo

€200 note
Size: 153 x 82 mm (6 x 3.2 in.)
Architectural period: 19th century iron and glass



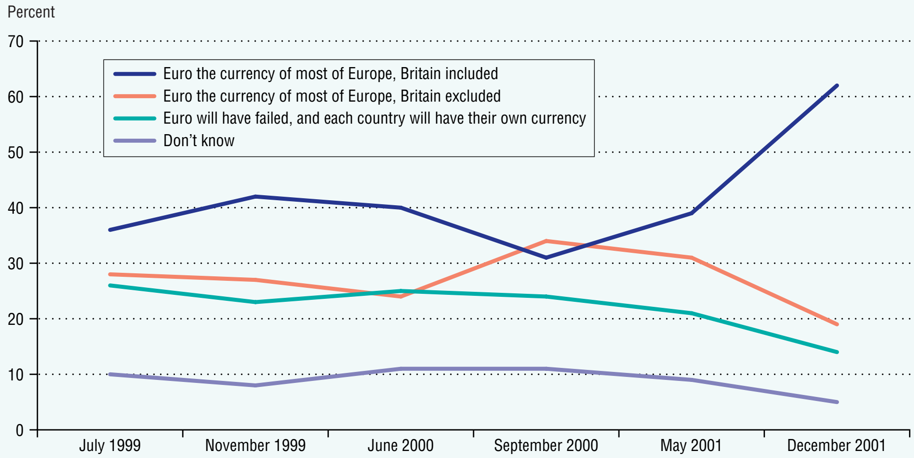
€500 note
Size: 160 x 82 mm (6.3 x 3.2 in.)
Architectural period: 20th century modern

SOURCE: European Central Bank.

Chart 2

UK Voters' Assessment of the Euro's Prospects Over the Next 10 Years

Question: Leaving aside how you would vote, in 10 years' time which of the following is most likely?



SOURCE: ICM Research, London.

less well-publicized example of a price rounded down. The January increase in inflation is in line with what would have been expected on the basis of existing seasonal patterns, recent price behavior and an increase in fuel costs in January. Furthermore, inflation in the United Kingdom (UK), which does not participate in the euro, accelerated by a comparable amount, from 0.9 percent in December to 1.6 percent in January. Inflation in Sweden, another nonparticipant, increased from 1.6 percent to 2.9 percent.

And Now?

Going forward, the completion of the cash changeover raises many important questions. One of the biggest is: How soon will the countries that are currently members of the EU but not members of EMU (the so-called pre-ins) adopt the single currency? Of the 15 current EU members, only three—the UK, Sweden and Denmark—do not participate in the single currency. Of the three, the UK is in many ways the most important, from both a European and U.S. perspective.

The single currency has been a divisive issue in British politics for more than a decade. Hostility to EMU on the part of the UK and Denmark was significant enough that both negotiated opt-out clauses to the treaty governing monetary union. However, many members of the UK's current Labor government, including Prime Minister Tony Blair, are enthusiastic about taking the UK into EMU, possibly soon. Europhiles are hoping the process of "euro creep" will lower resistance to the single currency and generate consent through familiarity. Many leading UK retailers have announced that they will accept euro, and some components of the payments infrastructure (vending machines, for example) will be calibrated to take euro. Furthermore, many large multinational businesses operating in the UK are requiring that their suppliers invoice them in euro.

And there is some evidence the electorate is slowly acknowledging that the UK will probably be a member of the euro area eventually. Last December nearly two-thirds of British voters polled agreed with the statement that the euro was likely to be the currency of most of Europe, Britain included, within the next 10 years (*Chart 2*). Opinion polls taken since the cash changeover confirm that public sentiment is becoming less hostile.

Concluding Observations

There is an apocryphal story that when the initial negotiations for the European Economic Community were taking place, the British delegate made the confident assertion, "Gentlemen, you are trying to negotiate something you will never be able to negotiate. But if negotiated, it will not be ratified. And if ratified, it will not work." At a session on the euro at the American Economic Association's recent meetings, a senior ECB official took some delight in reminding his audience of this remark and of the similar sentiments expressed by many North Americans that EMU would never get off the ground.

The successful introduction of the euro notes and coins completes the transition to economic and monetary union. The fact that the euro now has a physical form will make it more real to the average citizen and may begin to foster the European identity that was among the goals of the currency's architects. With the euro now the only coin of the realm in most of the EU, monetary union will be just that much more difficult to reverse, not that there is any provision for exit in the governing treaty. The success of the cash changeover may prompt the pre-ins to join EMU sooner rather than later.

—Mark A. Wynne

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