

The Euro as a Reserve Currency

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November 1997

One of the few things that can be said with certainty about European monetary unification is that its economic effects are uncertain. An example of this conundrum is the debate over the prospects of the euro as a reserve currency. Most observers agree that when the European Central Bank comes into operation in 1999 and the single currency is issued in 2002, important shifts will occur in the reserve portfolios of central banks.¹ While the euro will surely loom larger in foreign exchange reserves than what is currently Europe's dominant reserve currency, the deutsche mark, how much more important it will become and how quickly it will become more important remain to be seen. The most prominent opinion is that of Bergsten (1997), who argues that since Emu will create an integrated monetary and financial zone larger than the United States, the euro will quickly come to rival and even surpass the dollar as the leading reserve asset in central bank portfolios.

I revisit this issue, employing historical, institutional, and econometric evidence. My review leads me to underscore the uncertainties surrounding Emu's economic effects. There are two bases for my cautious approach to the prospects of the euro as a reserve currency. First, both history and the econometrics lead me to emphasize the advantages of incumbency. An incumbent international currency, like an incumbent politician, has a built-in advantage when competing to retain its status. It pays for central banks to hold their foreign exchange

reserves in a currency that is widely used for settling international financial transactions, that is, in a currency the markets in which are liquid and stable. It follows that it will pay for them to hold their reserves in the same currencies held by other international investors, including (but not limited to) other central banks. This network externality lends inertia and an element of path dependence to the development of reserve-currency status. The point is epitomized by the disproportionate importance of the pound sterling as a reserve currency well into the 20th century, long after Great Britain's dominance of international financial and commodity markets had passed.

To be sure, competition among currencies, like competition among politicians, admits of countervailing forces. Even in the heyday of the late-19th century "sterling standard," the currency's domination was far from complete. And systematic economic mismanagement by a reserve-currency country, like a politician's systematic failure to show up for roll-call votes, can quickly alienate its constituency. In addition, one can imagine a tipping point where other factors -- say, the fact that another country comes to account for a significantly larger share of international financial and commercial transactions -- offset the advantages of incumbency, and the network externalities that long worked in favor of a currency suddenly start to work against it. Sterling's history illustrates these points as well.

The second basis for caution concerns the institutional structure. Following Folkerts-Landau and Garber (1992) I argue that creating a market with sufficient stability to be attractive to international investors, including central banks, requires day-to-day liquidity management and periodic lender-of-last-resort operations on the part of the issuing central bank. This in turn presupposes that the domestic central bank will have supervisory and

regulatory authority over the market in whose management it is engaged. These are clear lessons of U.S. financial history: the dollar's acquisition of reserve currency status significantly lagged the rise of U.S. international economic power and had to await the creation of a Federal Reserve willing and able to carry out these functions. The Maastricht Treaty, in contrast, assumes a strong division between responsibility for monetary policy, which will reside with the ECB, and responsibility for supervision and regulation, which will rest with national authorities. While this arrangement may change over time, the initial conditions appear to bode ill for the euro's prospects as a reserve currency.

I make these points in a paper in four sections. Section 1 reviews historical evidence on the rise and fall of reserve currencies. Section 2 considers time-series evidence drawn from the generalized float of the 1970s, 1980s and 1990s, analyzing the influence on reserve currency status of incumbency, economic size, and economic policies. Section 3 turns to the importance of institutional arrangements in the case of the euro. Section 4 concludes.

1. Historical Evidence

The practice by governments and bankers to governments of holding foreign currencies extends back over centuries. But holding foreign assets as a reserve against official liabilities became standard practice only in the 19th century, with the emergence of liquid financial markets, modern central banks, and the international gold standard. In a sense, the rise of these practices was a correlate of modern economic growth. Prior to the industrial revolution, commodity monies dominated domestic and international transactions. The introduction of token coins and paper money was impractical so long as inadequate

standardization made counterfeiting easy. The development of the steam engine brought steam power to the mint, effectively removing this constraint. This in turn facilitated the rise of the gold standard, whose spread had been limited previously by the fact that the smallest gold coin was too valuable for day-to-day transactions (Redish 1990).

A. Sterling Under the Gold Standard

Prior to this time, most countries had been on the silver standard or on some form of bimetallic standard, under which the government stood ready to mint fixed quantities of both silver and gold bullion into legal tender, and under which small-denomination coins were composed of silver. Once the steam engine was introduced to the mint and token coinage became practical, the main constraint on going onto gold became acquiring an adequate stock of the yellow metal.² A government might accomplish this by suspending its commitment to purchase silver and allowing its internal price to decline below world levels. Arbitragers would then export silver and import gold, which the authorities would coin in unlimited amounts. But the transformation could be accomplished even faster when the metallic basis of the money supply was concentrated in official hands and only paper money and token coins circulated internally. In this case, one entity (the government or central bank) could itself exchange the nation's silver for gold on the open market. In poorer countries where precious metal was scarce, there was a natural temptation to acquire interest-bearing financial assets convertible into gold instead of gold itself. This temptation was strongest where the government secured the resources needed to establish gold convertibility through a foreign loan. Existing exchange reserves could serve as collateral, while the lender typically required the borrowing government to keep some of the proceeds of the new loan on deposit in the

issuing financial center. In a number of important gold standard countries, the statutes requiring the maintenance of gold convertibility authorized, or at least did not prohibit, the practice (Bloomfield 1959).

For all these reasons, the holding of foreign exchange reserves only became widespread after 1870.³ In 1880, the foreign exchange reserves of central banks and governments still amounted to less than 10 per cent of their gold reserves. The principal countries holding exchange reserves at this time were Austria, Belgium, Canada, Denmark Finland, Germany and Sweden.⁴

The share of foreign exchange in world reserves then began to rise. Japan acquired exchange reserves in the form of an indemnity from China following her victory in the Sino-Japanese War. In the 1890s Russia began holding the proceeds of her foreign loans in Paris and Berlin and using these as the basis for market operations to stabilize her currency. Austria emulated her example. In 1899 the British sovereign was made legal tender in India and the government established a reserve in London.

Sterling was far and away the leading reserve currency: in 1899 the sterling balances of official institutions were more than twice their known French francs, Reichsmarks and other currencies combined (Table 1).⁵ Britain being the leading trading nation, holding balances in London was the convenient way to effect balance-of-payments settlements. Britain being the leading creditor nation, sterling was the convenient currency in which to borrow and London was the obvious place to hold the proceeds. Starting in the 1860s, the Bank of England grew increasingly cognizant of its lender-of-last-resort responsibilities and guaranteed the liquidity of the London market.⁶ Above all, until 1871 sterling was the only major currency

unconditionally convertible into gold. Even the French franc, the second most important reserve currency, was convertible into gold at the option of the authorities, who might instead redeem their liabilities in depreciated silver.

For all these reasons, sterling had a head start on its competition. It is hardly a surprise that it was the leading reserve currency of the time. It retained its preeminence in 1913, when modern economic growth had spread to the European continent and elsewhere and Britain's commercial and financial dominance had begun to fade.

Yet sterling's position was in fact rather less dominant than much of the English-language literature would lead one to suppose. Indeed, the situation on the eve of World War I points up the limitations of the model of strong network externalities, according to which one reserve currency should crowd out the others. By 1913 the franc and mark together in fact accounted for as large a share of official foreign exchange holdings as sterling. As Lindert (1969) notes, network effects appear to have been regional, not global, in scope. Sterling owed its dominance in official portfolios to the exceptionally large sterling reserves held by the governments of India and Japan (including the Bank of Japan and the Yokohama Specie Bank). In Europe itself, sterling was a distant third behind the franc and the mark in terms in terms of the value of holdings of official institutions. This reflected the importance of the Paris capital market to a Russian government which held the majority of its exchange reserves in francs. But Greece and Romania, also dependent on French finance and in France's sphere of diplomatic influence, held more francs than sterling as well. The Reichsmark owed its importance to the holdings of nations close to Germany -- Austria, Italy, and Scandinavia --

with whom the country traded extensively and to Russia, reflecting the latter's relative geographic proximity to Berlin.

Thus, while gold-standard experience illustrates the importance of incumbency advantages and network effects, it also reminds that neither argument should be pushed too far.

B. Currency Competition Under Interwar Gold-Exchange Standard

Many recent authors have suggested that the differences between the “prewar gold standard” and “interwar gold standard” were more modest than commonly supposed. At the Genoa Conference in 1922, governments, concerned about the danger of deflationary pressure, adopted a resolution encouraging the practice of holding exchange reserves. Although a number of central bank statutes were adapted to facilitate the practice, the impact was less than hoped.⁷ Circa 1928, foreign exchange accounted for 24 per cent of global reserves, only modestly higher than the 19-20 per cent levels of 1913 (IMF 1953). This modest increase can probably be explained away by the higher interest rates that prevailed in the 1920s, compared to the immediate pre-WWI period, increasing the return on foreign exchange (Nurkse 1944).

Prior to World War I, the only countries to hold a significant share of their reserves in dollars were Canada, which was disproportionately dependent on the New York capital market, and the Philippines, which was effectively a dependency of the United States. Only after 1890 did the U.S. export more capital than she imported, and questions about the dollar's convertibility into gold were removed only with the adoption of the Gold Standard Act of 1900.

More fundamentally, the U.S. failed to develop the institutional prerequisites for elevating the dollar to the status of an international currency. The dollar was scarcely used in international transactions, reflecting the absence of a broad and deep market in bankers acceptances.⁸ Before the passage of the Federal Reserve Act, national banks were prohibited from accepting bills of exchange arising out of international trade. There existed no central bank to rediscount those acceptances and other commercial instruments or to purchase bills and acceptances directly using open market operations. Revealingly, there had been an active market in trade acceptances much earlier, in the days of the Second Bank of the United States. Under Nicholas Biddle, the Bank had rediscounted acceptances for other banks and used open market operations to buy bills for its own account. That market dried up once the Bank's charter, and the Bank itself, expired in 1836. Without a buyer of last resort to backstop the market, it was not attractive to use relatively illiquid dollar-denominated instruments to finance international transactions.

This situation was transformed by the founding of the Federal Reserve System and the intervention of World War I. In part, the Fed was a response to concern that the country's lack of a central bank was hindering the development of the discount market, rendering American firms dependent on the London market for short-term accommodation and damaging their international competitiveness. The establishment of a U.S. central bank with the capacity to rediscount the obligations of domestic financial institutions was a first step toward transforming this situation.

Other changes similarly worked to encourage borrowing in dollars. The Allies' wartime flotation of loans on the New York market accustomed them to dealing in dollars.

U.S. commercial and investment banks began to branch abroad before the war's end. The Europeans' forced liquidation of foreign assets and accumulation of external liabilities rendered their balances of payments, and by implication their exchange rates, less secure. And the devastating economic effects of the war and Europe's relatively slow postwar recovery increased America's share of international trade and financial transactions.

Surprisingly little is known about the shares of dollars, sterling and francs in the investment portfolios of central banks, which typically published information in their year-end balance sheets on the breakdown between gold and foreign exchange but did not divulge the currency composition of the latter. Triffin (1964) provides an estimate for 1928 of official reserves in dollars of \$600 million, versus \$2,560 million in other currencies (of which perhaps half still took the form of sterling). In light of the dramatic changes of the war and immediate postwar years, these figures suggest that the dollar made surprisingly few inroads over the subsequent decade. The U.S. far surpassed the UK as an economic and financial power, but the dollar did not yet rival sterling as a reserve currency. This is powerful testimony to the advantages of incumbency and the enduring legacy of institutional arrangements past.

The collapse of the gold standard starting in 1931 and the exchange-rate instability that followed precipitated the large-scale liquidation of foreign exchange reserves as central banks scrambled out of sterling and dollars and into gold. Triffin estimates that reserves denominated in dollars fell to \$60 million by the end of 1933, reserves denominated in other currencies to \$1,055 million. It is likely that more than half of the \$1,505 million decline in "other currencies" reflects the liquidation of sterling following Britain's abandonment of the gold standard, the French franc remaining stable and convertible throughout this period. Still,

the known reserves of sterling area countries, estimated to have been in the range of \$750 million throughout the 1930s, consistently exceed Triffin's estimates of dollar reserves.⁹ Admittedly, sterling may have been even more of a regional currency than before, the bulk of sterling reserves now being held by Ireland, India, Pakistan and Australia. Be that as it may, the dollar continued to lag sterling as a reserve currency, this despite the fact that the United States re-pegged to gold in 1934 (in contrast to the UK, which continued to float). However checkered interwar experience, the advantages of incumbency are clear to see.

C. The Dollar and Bretton Woods

The economic devastation caused by World War II was widespread, the change in financial positions extensive. In the wake of the war, the United States accounted for fully half of global industrial production and possessed far and away the world's largest financial market. Sterling may have been decoupled from gold and allowed to float in 1919, but it had remained freely convertible into other currencies. Now, in contrast, the authorities were forced to delay the full resumption of convertibility for more than a decade (aside from a short, disastrous period in mid-1947). All this time the dollar was fully convertible and in strong excess demand, reflecting other countries' insatiable appetites for U.S. exports and dollar reserves.

Some time passed before this shift in fortunes showed up in the official statistics. Wartime Britain had purchased raw materials and intermediate inputs by negotiating with other countries to sterilize and block the sterling balances they obtained in return (some £2 billion in the case of sterling-area countries, an additional £1 billion in the case of other countries). The overhang of sterling balances gives the appearance of impressive reliance on

sterling reserves in, say, 1949. The reality was different, since these balances were to a considerable extent blocked and inconvertible. Their level remained stable through the 1950s, the liquidation of involuntarily-held balances being almost exactly offset by the voluntary accumulation of sterling reserves. But the vast majority of reserve accumulation was in dollars. By the middle of the 1950s the dollar dominated sterling; by the early 1960s dollar reserves were double sterling reserves and some 60 per cent of the world total (Table 2). Britain's relatively slow growth meant that she accounted for a progressively declining share of world production, trade and financial flows, while her balance of payments problems in the 1950s, in 1964 and most dramatically in 1967 made countries fear that holding sterling meant holding a depreciating currency. There might be questions about the long-term stability of the dollar, but they were of a more distant nature.

The other noteworthy development was the debut of the deutsche mark as a reserve currency. From negligible levels in the early 'sixties, deutsche mark reserves rose to about \$1 billion at decade's end, where they amounted to roughly 25 per cent of reserves denominated in sterling and 5 per cent of reserves in dollars. Seen through the rear view mirror, this is a surprisingly low level, given the currency's persistent strength, the fact that it was revalued in both 1961 and 1969, and the extent to which Germany was at the center of Europe's trade. Countries remained suspicious of holding the currency of a former enemy power which had operated under significant restrictions on its sovereignty as recently as 1955. The German authorities resisted the internationalization of their currency. And the bank-based nature of Germany's financial system meant that it lacked the deep, liquid and stable security markets

necessary to make a currency attractive in international transactions. Here too, history cast a long shadow.

D. Currency Competition After Bretton Woods

The period since 1971, marked by generalized floating and the development of a more multi-polar world economy, has seen some diversification of the currency denomination of official foreign exchange reserves. The United States no longer accounting for so large a share of world trade and output and the dollar no longer being the universal numeraire for international transactions (in other words, with the number of countries pegging their exchange rates against the dollar falling over time), central banks have diversified their holdings, as shown in Table 3.¹⁰ (See also Figure 1.) The share of sterling in the world total declined sharply in the 1970s, from 8 per cent at the start of the decade to 2 per cent at its conclusion (Figure 2); note, however, that high inflation and the country's appeal to the IMF in 1976 led not to any sudden liquidation of existing sterling reserves but merely to a reluctance of countries to accumulate more. In the longer term, not only has the share of deutsche mark-denominated reserves continued to grow (Figure 3), but the yen's share has risen from essentially zero in the early 1970s to about six per cent today (Figure 4). The latter's rate of growth is impressive, but, as is well known, its weight in central bank portfolios remains small.

While the dollar's share fell over the post-Bretton Woods quarter century as the currency made way for the deutsche mark and the yen, two further facts about its role are particularly revealing. First, the sharpest downward movement was in the late 1970s, coincident with a period of high inflation and macroeconomic instability in the United States.

Second, the dollar's share has in fact been rising in the 1990s, a trend which continued in 1996. It is the deutsche mark's and yen's shares, not the dollar share, that have been declining in the 1990s. While a more diversified world trading and financial system implies more diversified reserve holdings, these trends suggest that incumbency continues to exert powerful effects except when it is swamped by those of policy instability.

2. Econometric Evidence

In this section I present some time series evidence on determinants of the shares of dollars, deutsche marks and sterling in foreign exchange reserves since 1971, when the Bretton Woods System broke down and the monetary role for gold was diminished.¹¹ The results extend those reported in Eichengreen and Frankel (1996). Here I use a longer time series on reserves spanning the period 1971-1995.¹²

The regressions relate the share of dollars, sterling and yen in global foreign exchange reserves to each country's share in global GNP (measures at purchasing power parity), its share of global exports, and a lagged dependent variable. The equation for deutschmarks is not estimated separately, since dollars, sterling, deutschmarks and yen together account for the vast majority of central bank exchange reserves for most of the sample period; estimating all four equations would essentially violate the adding up constraints on the coefficients.¹³ The determinants of the remaining shares are estimated by seemingly-unrelated regression, with the slope coefficients unconstrained and, alternatively, constrained to be equal across equations.

The simplest model is shown in the first three columns of Table 4. A coefficient on share of global output of 5, as is typical for our three countries, suggests that a one

percentage point increase in a country's share of GDP (measured at purchasing power parity) leads to a five percentage point increase in its share of global reserves.¹⁴ Thus, the U.S. share of global GDP, so measured, has declined from 23 to 22 per cent over the last decade, suggesting a five percentage point decline in the dollar's share of foreign exchange reserves. This simple relationship tracks actual behavior relatively well until the early 1990s when, as previously mentioned, the dollar's share begins to rise. The same anomaly is evident for the UK. On the other hand, the relationship is particularly robust for Japan.

With the addition of a lagged dependent variable, as in the next three columns, the impact effect of country size is considerably reduced, to half its previous size for the US, to less than a fifth of that size for Japan, and to essentially zero for the UK. The lagged dependent variable is consistently significant and enters with a coefficient of 0.7 for the US and 0.8 for the UK and Japan. This is powerful testimony to the influence of history.

The most general model, in the final three columns of Table 1, includes GDP shares, export shares, and lagged effects. Given multicollinearity between trade and output shares, the separate effects of the latter are difficult to estimate. In Table 5 I add power by constraining the coefficients on these variables to be equal across equations. In the first column the coefficients on the lagged dependent variables are allowed to vary across currencies, while in the second column they are constrained to equality. When the constraint is imposed, it would appear that a one percentage point increase in a country's share of global GDP leads on impact to a 0.8 per cent increase in the share of global foreign exchange reserves accounted for by its currency. The long run effect, on the other hand, is roughly three times as large. The

difference between short- and long-run effects is largest for the US but smallest for Japan, again consistent with the notion that history matters for reserve-currency status.

3. Institutional Considerations

European monetary unification, it is now common to assert, will be the most important event in the evolution of the international monetary system since the breakdown of Bretton Woods.¹⁵ As the currency of the member states of the European Union, the euro will be the basis for transactions in an economic zone with a GDP greater than that of either the United States or Japan. As it becomes the currency of denomination for foreign investment into and by the EU and the invoicing currency for its international merchandise transactions, the euro will emerge as one of three leading reserve and vehicle currencies along with the dollar and the yen.

So the conventional wisdom would have it. But the historical and econometric evidence presented above suggests that this now-common view may be wide of the mark. The advantages of incumbency are strong. This suggests that the dollar will continue to dominate international reserves for some time, absent economic mismanagement in the United States.

There are two additional reasons why the transition to a world in which the euro rivals with dollar as a reserve currency will be slow.¹⁶ First, the starting point will be less favorable for the euro than suggested by current statistics. With monetary unification, those who hold currencies for trade- and balance-of-payments-related reasons will no longer have a reason to regard trade and payments within the euro zone as relevant to their calculations. The share of the dollar in world trade and payments will rise automatically from 48 to 55-60 per cent

(Hartmann 1996). The share of euros in international reserves will decline with the advent of Stage III. The Bundesbank's French franc reserves and the Bank of France's deutsche marks will no longer count as reserves. The European System of Central Banks will find itself holding proportionately more dollars at the start of Stage III than it did at the end of Stage II. It will not be unhappy about this, since there will be no intra-Euro-zone foreign-exchange-market intervention.¹⁷

Secondly, the prospects for the reserve currencies will depend on where economic growth (and the demand for reserves) is concentrated, leaving aside the key-currency countries themselves. One view is that Asia will continue to grow relatively fast. China and the South Asian countries are not only fast growers but have voracious appetites for reserves.¹⁸ But they trade more extensively with the U.S. and Japan than with the European Union, which is less open to imports from the NICs. If output, trade and the demand for reserves keep growing fastest in Asia — a forecast which has of course been disputed — this bodes well for the reserve-currency status of the dollar and the yen and poorly for the Euro. In fact, the Asian economies have been diversifying the currency composition of their reserve portfolios. But there is still good reason to think that so long as they continue to trade disproportionately with the United States they will be inclined to hold disproportionate shares of dollar reserves (Benassy 1996). Rapid growth in Eastern Europe works in the opposite direction, of course, but only so long as the countries of that region remain outside the EU and its monetary union.

Ultimately, the attractions of the euro as a reserve currency will hinge on how widely it is used in international transactions more generally. And this will depend on whether Europe

rivals the United States as a financial center -- whether it becomes a center for international financial transactions of all kinds, encouraging the use of the euro in completing those transactions. Countries, or more precisely cities within countries, become financial centers when their markets in financial assets are deep, liquid, and stable. Status as a financial center, once acquired, thus tends to sustain itself. When a country succeeds in attracting a critical mass of transactions in the relevant securities, other investors bring their business there to take advantage of the liquidity and depth of the market. Incumbency is an advantage, and the United States is the leading incumbent financial center. But Emu, it is hoped, might be a sufficient shock to the status quo to vault the EU into first place in this competition.

The obvious indicators of financial depth bode well for these aspirations.¹⁹ The introduction of the euro has the potential to create the largest financial market in the world. The market value of the bonds, equities and bank assets issued in EU countries amounted, at the end of 1995, to roughly \$27 trillion; the comparable figure for the United States is \$23 trillion. Were Emu to include only the "Baffling Countries" (Belgium, Austria, Finland, France, Ireland, Luxembourg, the Netherlands and Germany) plus the three "Club Med Countries" Portugal, Spain and Italy, it would still equal the size of the U.S. market. Were it to include only the Baffling Countries, it would be only two-thirds as large, but the market value of issues would still exceed that of Japan.

At the same time, there are important differences between Europe and the United States in the relative importance of bank and nonbank assets. At the end of 1995, bank assets comprised more than half of all outstanding financial assets in the 11 aforementioned EU countries, whereas in the United States they accounted for less than a quarter. The securities

issued by the EU 11 (stock market capitalization plus public and private debt) amounted to a mere 50 per cent of those outstanding in the United States (\$9 trillion versus \$18 trillion). It is particularly unusual for European companies to issue the kind of short-term obligations that in the United States provide the basis for the highly-liquid commercial paper market (U.S. commercial paper accounting for more than half of the world's total).

These differences in asset composition mean that from the standpoint of creating a deep and liquid market in securities (corporate securities in particular), even a Europe with a single currency will start off behind the United States. And in contrast to markets in public debt, which are integrated internationally, Europe's markets in corporate debt are still segmented nationally. All but the largest corporations borrow almost exclusively from domestic sources. The European market in corporate paper is less deep and integrated than that of the United States.

This is what Emu is supposed to change. By eliminating currency risk and reducing transactions costs, it will create a Europe-wide market in corporate debt. And the likelihood that the ECB will use repurchase agreements to implement its monetary policy will encourage the development of an Emu-wide repo market. This is not to suggest that Europe's tradition of bank-based finance will be driven out of existence by the "Anglo-Saxon" alternative of securities markets, but in fact there has already been considerable movement in the direction of greater reliance on bond and equity finance in some Continental European countries, most notably France.²⁰ For optimists this bodes well for the emergence of the European Union as a financial center.

This tale, which is familiar in its outlines, may in fact miss the critical factors that will determine whether the EU becomes a financial center to rival the United States. The critical determinants may be the scope of the responsibilities assumed by the European Central Bank.²¹ It is assumed that, in line with Bundesbank practice, the ECB will engage in relatively limited day-to-day liquidity management. Following the Bundesbank, it will provide refinancing to the private sector perhaps once a week, using reverse transactions (repos). While such periodic transactions are appropriate for bank-based financial systems, in which the interbank market can be relied on to match financial institutions with excess demands and supplies of liquidity, securitized financial systems are characterized by more generalized excess supplies and demands. Preventing sharp spikes in interest rates requires continuous liquidity management by the central bank, not just periodic intervention. Admittedly, the ECB will possess other windows at which financial institutions can obtain overnight liquidity, notably a marginal lending window. But the fact that it will not use open market operations to suppress sharp spikes in liquidity means that rates on the relevant instruments will not exhibit the attractive stability of Anglo-Saxon markets. And the activities of the ECB will themselves contribute relatively little to the creation of a stable and active market in the relevant instruments.

A second point is that the depth, breadth and stability of the market will depend on the extent of last-resort lending by the central bank. The Maastricht Treaty does not make provision for last-resort lending and bank supervision by the ECB. It adopts the Continental European model in which the responsibility for bank supervision and support is typically

separated from monetary policy and assigned to an agency under the control of the Ministry of Finance.

Actually, in eight of 15 EU member states -- France, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain -- the monetary authority is at least partially responsible for bank supervision.²² But Germany is absent from this list, and German arrangements were clearly the model for the ECB. The Maastricht Treaty had the Bundesbank in mind when it made the ECB subordinate to the relevant national supervisory authorities. To quote Article 25, “**the ECB may offer advice and be consulted by the Council, the Commission, and the competent authorities of the EU countries on the scope and implementation of Community legislation relating to the prudential supervision of credit institutions and the stability of the financial system**” (emphasis added). But while the ECB will propose, the national regulatory authorities will dispose. It is they who will make supervisory and regulatory policies and implement decisions.

In bank-based financial systems, there is a logic to separating monetary policy from bank supervision. Doing so insulates the central bank from lobbying by large, politically influential financial institutions. And where finance is bank based, there is less need for the central bank to inject liquidity to prevent financial markets from seizing up. To be sure, it may still be necessary to prevent problems in a particular bank from leading to a system-wide banking panic, but there exists a variety of instruments for containing the impact of isolated banking problems, notably lifeboat operations by the banks themselves (which are feasible because of the relatively small number of major banks) and recapitalization by the fiscal or supervisory authority.

In contrast, in countries like the US and the UK with highly securitized financial markets, the central bank has repeatedly acted as lender of last resort. Recall the 1980 Penn Central bankruptcy, which caused a liquidity crisis in the U.S. commercial paper market, or the 1987 stock market crash. In 1987 the problem was that floor traders lacked the liquidity to keep up with the flood of sell orders. Unprecedented order imbalances in several large stocks delayed openings on Monday, October 19th for as much as two hours. And once trading in those securities opened at drastically reduced prices, investors found themselves forced to sell out by margin calls. Traders who might have wanted to purchase securities whose prices had fallen lacked the liquidity to do so, and other investors, having purchased on margin, had no choice but to redouble their distress sales as the market continued to fall.

One can imagine how a total meltdown might have resulted. Fortunately, the Fed was quick to act. It provided liquidity to the banking system, which passed it through to its dealer/trader customers. Over the two subsequent weeks the Fed pumped up the monetary base at an annual rate of 40 per cent.

The lesson of this episode is general.²³ It is that securitized financial systems, to be stable in the face of sudden movements in asset prices, need governmental authority with the ability to backstop the market. This is the case in both the U.S. and the UK, where securitized finance is well advanced. Indeed, the United States acquired its role as a major player in international financial markets only after the Federal Reserve System was established in 1913 (as described above). Bank-based financial systems can themselves experience contagious losses of confidence with systemic repercussions, but the scope for such problems increases exponentially with securitization.²⁴

The Maastricht Treaty says little about the ECB's responsibilities in this connection. Admittedly, it does give the ECB responsibility for promoting the "smooth operation" of the payments system. But how will problems in that system be detected if the ECB has no supervisory responsibility? Will the ECB be prepared to provide liquidity to financial institutions if it lacks timely information on whether they are facing liquidity or solvency problems and it has no basis on which to value the collateral they offer?

Where does this leave us? The argument is not that securitized financial markets will stagnate in Europe in the absence of continuous liquidity management and last-resort lending by the ECB. Those markets will develop in response to the same advances in information- and risk-management technologies that have stimulated their growth in the United States. Still, it is unlikely that European securities markets will rival New York in the absence of a central bank which stands ready to backstop the market. Traders and dealers will not undertake business on the scale of their American competitors if they have to raise additional capital because they cannot rely on ample credit lines from their banks, who in turn cannot obtain them from the ECB. And if the asset-price volatility that will result threatens the stability of important financial institutions, regulators will be reluctant to permit securitized markets free rein.

European policymakers are aware of these issues. The question is whether, once Stage III begins, they will encourage the ECB to provide the requisite liquidity-management and backstopping functions. Will the ECB become more responsive to the needs of Europe's growing securities markets, in other words? One possible answer is yes -- that political imperatives to model the ECB's operating procedures on those of the Bundesbank will

become less powerful once monetary union is a *fait accompli*. Once German participation in the monetary union is no longer at issue, it may be possible for central banks and officials to make known their preference for a different model.

But another answer is no, that the ECB will not move over time toward more active liquidity management and backstopping operations, because its initial approach to monetary policy and the initial structure of European financial markets will become locked in. The dominance of bank-based finance in Europe will encourage the ECB to cater to the needs of a bank-based financial system, which do not include the liquidity-management and backstopping functions required by securities markets. As a result, bank-based finance will retain a comparative advantage relative to securitized finance, and the consequent persistence of the bank-based system will encourage the ECB to stick to its initial approach. We could have here a classic case of a positive feedback loop. If so, the convergence of the Anglo-American and Continental Europe financial systems could turn out to be much less dramatic than is commonly supposed.

4. Conclusion

This paper has considered the euro's prospects as a reserve currency following its introduction in 2002. It ends up throwing cold water on more optimistic projections which see it as rivaling and even perhaps surpassing the dollar, to a point where it accounts for 40 per cent and more of global foreign exchange reserves. Such forecasts are based on comparisons of national incomes, exports and financial transactions, which suggest that the euro zone will dominate the United States, Japan and other aspiring reserve-currency countries. This paper

has emphasized, in contrast, that incumbency is a strong advantage in the competition for reserve-currency status. Both historical and econometric evidence point in this direction. The dollar being the reigning champion, it accounts for a larger share of global foreign exchange reserves than suggested by a simple comparison of US and EU GDP's, and it should do so for some time to come. A more institutionally-oriented analysis reinforces the point. Reserve currencies are those which are issued by the governments of countries that are international financial centers. The United States gained its status as a financial center and the dollar its reserve-currency role only once the country acquired a central bank ready and willing to engage in day-to-day liquidity management and prepared to mount lender-of-last-resort operations. The Maastricht Treaty does not foresee the European Central Bank as assuming comparable responsibilities. This will tend to slow the development of the euro zone as an international financial center and, by implication, limit the euro's reserve-currency role.

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Footnotes

1. See for example Benassy-Quere, Italianer, and Pisani-Ferry (1994), Benassy-Quere (1996), Alogoskoufis and Portes (1997), and Bergsten (1997).

2. The discussion that follows builds on Eichengreen and Flandreau (1996).

3. Note the word “foreign.” A parallel development was the growth in the 19th century of overseas branches of London banks to provide finance in British colonies and protectorates.

These branches maintained assets in London and issued bank notes for the colonies, maintaining a fixed exchange rate between that currency and sterling.

4. The data utilized in this subsection are from Lindert (1967). The discussion draws on Bordo and Eichengreen (1997).

5. Note that the currency denomination or domicile of a quarter to a third of the foreign exchange reserves held by central banks and governments in this period were not specified, making all such estimates rough and ready.

6. As one author put it, “The main technical reason why it was possible to operate a single-centred system relatively smoothly was that short-term finance in London was always available. In times of difficulty, adequate amounts of international liquidity would always be created.” Day (1953), p.18.

7. These new statutes explicitly authorized the central bank to hold a portion of its reserves in convertible foreign exchange and in some cases gave it the option of redeeming its notes in foreign exchange rather than gold.

8. The argument here builds on Broz (1997).

9. See Nurkse (1944), p.55 and Bell (1956), Table 1. Ireland’s sterling reserves account for the largest single part of this total.

10.Dooley, Lizondo and Mathieson (1989) show that for developing countries in particular the tendency to hold a particular reserve currency is greater when that country pegs its exchange rate to the reserve-currency country, when it trades heavily with that country, and when its external debt service payments are heavily denominated in that country's currency.

11.For the earlier period it would be necessary also to analyze portfolio choice between gold and foreign exchange. On this question see Bordo and Eichengreen (1997).

12.Data on the composition of reserves are drawn from the IMF's annual reports. Other data on inflation and the shares of countries in global GDP and exports are from the Fund's World Economic Outlook database.

13.The deutschmark share is the least well behaved of the four, in part due to the effects of the German unification shock, making it the logical equation to drop. As shown in Figure 3, German unification led the country's share of global GNP to jump up discontinuously.

Coincident with this, central banks began to run down their deutschmark reserves, perhaps in anticipation of unification's inflationary consequences.

14.This is a larger effect than reported in Eichengreen and Frankel (1996).

15.See for example Bergsten (1997).

16.Here I draw on Eichengreen (1997).

17.Estimates by Benassy, Italianer and Pisani-Ferry (1994) for 1992 run as follows. If the EU wishes to maintain its traditional ratio of reserves to imports, it would be able to liquidate about a third of its reserves when Stage III begins. The vast majority of this liquidation (say, 80 percent) would occur automatically, as reserves denominated in the currencies of Emu members were converted into internal credits of the ESCB. Thus, the initial decline in reserves held in European currencies *in Europe* would far outstrip any reduction in the ECB's

holdings of extra-European currencies. If the ECB further reduced its reserves to the lower level in relation to trade that is typical in the United States (European central banks having traditionally held higher levels of reserves to finance EMS interventions), then the differential would shrink but not be eliminated. (Benassy, Italianer and Pisani-Ferry estimate that more than two-thirds of the consequent liquidation of reserves would take the form of the conversion of reserves of European currencies into internal credits.) A more recent study by Goldman Sachs (1996) assumes that only the Baffling Countries (Belgium, Austria, Finland, France, Luxembourg, Ireland, the Netherlands and Germany) are founding members of the monetary union and reaches broadly similar conclusions.

18.Their demands will grow even more quickly if they seek to operate some kind of joint basket peg, as Williamson (1996) has proposed.

19.The discussion here draws on Prati and Schinasi (1997).

20.See Boissieu and Pisani-Ferry (1997).

21.In developing this argument I draw on the work of Folkerts-Landau and Garber (1992).

22.See Goodhart and Schoenmaker (1995).

23.It follows from the 1929 stock market crash, when the Fed also generously injected liquidity to prevent the initial fall in prices from feeding on itself even more alarmingly. See Eichengreen (1990).

24.See Folkerts-Landau et al. (1997).