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The Ecu and Reserve Management

* The views expressed in the paper are purely personal.

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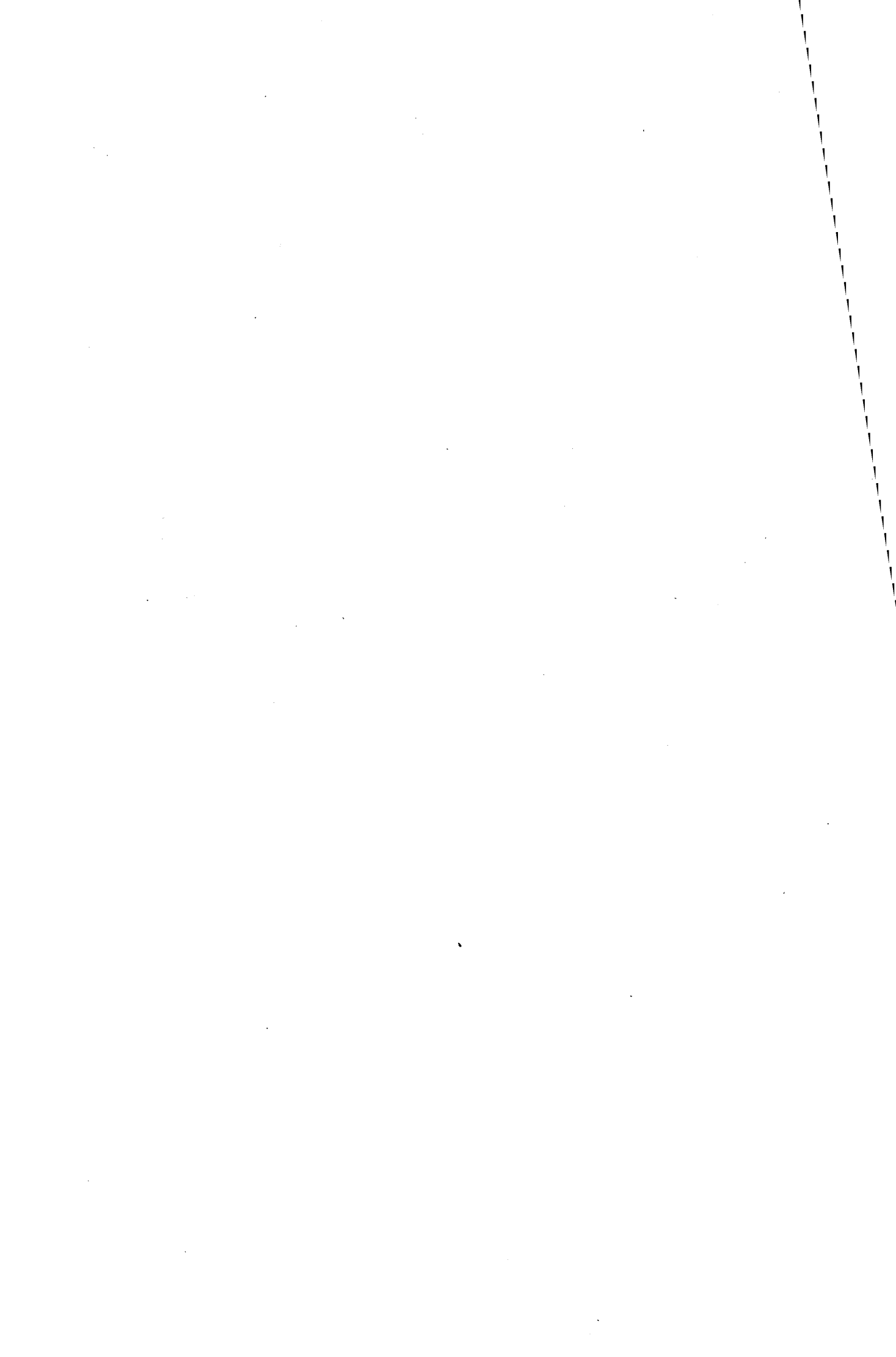
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Abstract

The exceptional growth of the Ecu financial market during the past decade and a half has important implications for international reserve management strategies, particularly of countries outside the EMS linking their currencies to the Ecu. After examining the various criteria used to determine the currency composition of a central bank's reserve portfolio (maintenance of confidence in the exchange rate, minimisation of transactions costs, maintenance of the value of reserves in terms of imports, achievement of goals with respect to liquidity, risk and return), the paper considers the strengths and weaknesses of the Ecu as a reserve currency. It concludes that, despite the absence of a single lender of last resort and the need to develop the clearing and settlement system for private Ecus, the Ecu has clear advantages as a reserve asset. The principal arguments for holding a part of the reserve portfolio in this unit are increased credibility of the Ecu link, absence of offsetting action by, or pressure from, another central bank of issue and a reduced mismatch between assets and liabilities leading to greater stability of revenue.



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Contents

	<i>Page</i>
Introduction	7
The nature of the ECU	8
<i>Reasons for the use of the private ECU as a reserve currency</i>	9
The use of exchange reserves	11
<i>The role of the ECU in a reserve management strategy</i>	15
ECU clearing and settlements	18
<i>Efficiency vs. robustness</i>	19
Conclusions	21
<i>References</i>	22

Introduction

The protracted and so far unconsummated efforts to achieve economic and monetary union (EMU) in Europe have overshadowed a quiet revolution in international monetary relations. In the thirteen years since the European Monetary System (EMS) was established, the ECU has risen from a notional unit of account to one of the leading currencies in the international financial market. It is now one of the principal forms in which official monetary reserves are held. At the end of 1990, Ecu-denominated assets ranked fourth after the US dollar, gold and the Deutsche Mark and ahead of the yen, IMF reserve positions and the SDR in global reserve holdings (Table 1). In addition, unlike either gold or the SDR, the ECU is used actively in exchange market intervention.

The ECU is also used extensively in interbank payments. Large value interbank transfers in ECU amount to over \$30 billion each day and exceed those in the French franc, Italian lire or any other currency issued by the smaller members of the EMS. A spate of new issues in the first three quarters of 1991 made the ECU the second most important currency of issue in the fixed rate Euro-bond market, after the US dollar. The depth of the market has increased substantially with the emergence of benchmark issues for a variety of maturities and an increase in secondary market turnover. In the first quarter of 1991 transactions in the secondary market exceeded \$50 billion per month, making ECU bonds the third most actively traded instrument after US dollar and Deutsche Mark instruments. It is also noteworthy that ecus are being increasingly held in their own right rather than being swapped into other currencies.

Despite the overwhelming evidence of its importance, the ECU is widely thought to be only a pale shadow of a true currency. One reason for this may be that, notwithstanding its rapid rise in recent years, the ECU still accounts for less than a tenth of international banking and bond assets outstanding and not even one per cent of total foreign trade invoicing. Another reason may be confusion between the official and the private ECU, which are very different in nature. The first cannot be used as a general means of payment, whereas the latter is a true privately issued international currency though one not used extensively in commercial transactions. A possibly more decisive - and unquestionably more atavistic - reason is that, apart from a few coins of purely numismatic interest, the ECU does not exist in a tangible form. Although payments made with coin and bank notes account for only a tiny fraction of the total value of all financial and commercial transactions, the ability to pay in cash is considered fundamental. Any currency which cannot be held in the hand is thought to be seriously wanting in

some ill-defined but primordial sense.¹

This paper argues that as far as central bank reserve management is concerned, the ECU - or more particularly the private ECU - should be viewed as a full fledged money and treated on a par with any other currency when deciding upon reserve investment and intervention strategies. In particular there are both macro and micro reasons for a country which links its currency to the ECU to hold a sizable portion of its reserves in private ECUs. At the same time, there are certain features of the private ECU arising from its nature as an internationally issued private currency that speak in favour of caution. Three of these features are the uncertainty about the future value of the ECU, the diffusion of lender of last resort responsibilities and the risks associated with the clearing arrangements for private ECU payments.

The paper is organised in the following manner. The first section lays the ground by examining the nature of the ECU, distinguishing sharply between its private and official forms. The second section examines the reasons for holding reserves and evaluates the role private ECU holdings might play in the reserve management strategy of a country outside the EC that defines its currency in terms of the ECU. The third considers some of the issues relating to clearing and settlement of transactions in the private ECU. The fourth and final section draws a few conclusions.

The nature of the ECU

The ECU exists in two forms, official and private. Despite the similarity of their epithets, these two units have virtually nothing in common apart from being defined in terms of the same set of national currencies. They cannot be exchanged one for another. They are issued by totally different types of institutions and, for the most part, they are held by entirely different types of institutions. At times their interest rates and exchange rates have diverged substantially from one another (see Charts 1 - 3).

Official ECUs are liabilities of the European Monetary Co-operation Fund (EMCF or Fecom). They are created by swaps and other operations between the EMCF and the 12 EMS countries. All European Community countries are members of the EMS irrespective of whether they have decided to forego the option of unilaterally changing their exchange rates by joining the Exchange Rate Mechanism (ERM). And no country from outside the EC participates in the EMS,

¹ The absence of use in retail transactions is by no means unique to the ECU. The SDR, the other major man-made unit held as an international monetary asset, cannot be used for retail payments. Even gold, a barbarous relic of a more primitive age but one with an almost mythical monetary status, is not used for retail payments.

notwithstanding the strength of the link between its currency with the ECU.

EMS member countries receive official ecus, which are simply entries in the books of the EMCF, in exchange for 20% of their official US dollar and gold holdings. The exchanges take the form of swaps which are renewed every three months at market related terms. In addition short-term financing operations amongst EMS countries can give rise to official ECU claims. However these operations have generated only a small fraction of total official ECU claims.

The creation of official ECUs leads to an increase in recorded reserves because the EMCF uses market-related prices when swapping gold into ECUs whereas the central banks of the 12 EMS countries frequently value gold at low, historical prices. In addition, to the extent that EMS countries are more willing to use their official ECU balances than to mobilise their gold, the creation of official ECUs augments international liquidity. Nonetheless, the official ECUs are not part of a country's foreign exchange reserves. They cannot be bought and sold in the market like a true currency but only transferred to the accounts of a very limited number of institutions (other EMS members and a handful of designated official holders such as the BIS, Austria, Norway and Malta).

Private ecus are a totally different instrument. They are freely transferable and can be bought and sold in the market. Although transactions denominated in ECUs do not rival those in dollars, DM or yen, exchange market activity is substantial, and average daily exchange market turnover in ecus can be estimated to range between \$15 and 25 billion. When held by central banks or other official holders, private ecus are fully equivalent to foreign exchange reserves.

The term "private" is somewhat misleading in the sense that they are issued not only by private companies and commercial banks but equally well by public sector entities and supra-national institutions. In fact governments were the most important issuers of Ecu-denominated bonds between end-1989 and September 1991, accounting for almost two-thirds of all ECU bond issues.

The private ECU is denominated in terms of official ECUs, and its value changes whenever the basket used to determine the value of the official ECU changes. However, this is the only link between the two types of ECU. Transactions in private ecus are not settled in official ECUs, and the neither the EMCF nor the private ECU clearing agent serves as a lender of last resort for transactions in such ECUs.

Reasons for the use of the private ECU as a reserve currency

Although the ECU is increasingly used in international financial transactions, the expansion of its significance as a reserve asset over the past ten years is striking. Its share in total reserves is far larger than is warranted by its share in

international financial market business. This somewhat curious phenomenon has its roots in a number of different factors. Firstly, the drive to create a zone of monetary stability in Europe has made ERM countries more reluctant to countenance fluctuations in exchange rates, and they have sought to build up their reserves. Their need for reserves in European currencies is much greater than in other currencies since they are more concerned about their exchange rates vis-à-vis one another than vis-à-vis the dollar or the yen.

Secondly, for both European and other countries, the ECU offers a simple, easy and inexpensive way to diversify exchange rate risk. By buying a single asset denominated in ecus, a reserve holder is able to spread the exchange rate risk over a basket of currencies composed of all countries making up the EMS. Markets in many of the composite currencies are thin and inefficient, so that even if the agent in question wished to purchase the underlying currencies, transactions costs and liquidity considerations would militate against such action.

Thirdly, markets in ECUs have become much wider and deeper over the course of time. Governments have actively promoted these markets for both mercantilistic and ideological reasons. Recognising that the ECU might some day become the single European currency, individual countries have attempted to make their financial centres its home for reasons for prestige, revenue from financial services and potential influence over European central bank policy. The UK government has been opposed to the administrative imposition of a single European currency but has not been adverse to the emergence of such a currency when this occurs through market forces. It has promoted the use of the private ECU as a reserve currency by issuing paper with characteristics that appeal to official holders, by fostering secondary markets in such paper and by taking the proceeds of its own ECU bond issues into its official reserves. The French and Italian governments, both of which are strong proponents of EMU, have been major issuers of ecu-denominated debt whereas Germany, which has not been a vocal advocate of rapid transition to a common European currency, has been conspicuous by its absence from the ECU market.

A fourth reason for the popularity of the ECU as a reserve asset is that rates of return on private ECUs have on average exceeded those on the other main European currency, the Deutsche Mark. Moreover, in certain periods, for example 1987 and the first half of 1988, rates on the ECU have been above those on the synthetic basket composed of the underlying currencies. Clearing and settlement procedures for ECUs are also rapid and efficient, and transactions for same day settlement can be carried out for several hours longer in ECUs than in Deutsche Mark.

A final reason for the rapid growth in the use of the ECU as a reserve asset is discouragement by the German authorities of the use of the Deutsche

Mark as a reserve currency.²

The use of exchange reserves

In order to evaluate the role of ECU holdings in a reserve management strategy, it is useful to step back and consider the reasons why reserves are held. The use to which they are put is a major determinant of the forms in which they are held. Only if markets are completely efficient is the composition of reserves of no importance whatsoever.³

Exchange reserves serve a variety of purposes, the relative importance of which depends on such factors as the exchange rate regime, the extent of the country's economic and financial integration with the rest of the world and the position of the central bank. For countries pursuing flexible exchange rate policies, exchange reserves allow the authorities to resist cumulative pressures that might push the exchange rate to levels considered inappropriate in light of macroeconomic conditions and efficient resource allocation. For countries with firm exchange rate commitments, reserves provide a modicum of discretion over domestic monetary conditions if informational asymmetries, frictions and transactions costs prevent domestic and foreign moneys from being perfect substitutes. In both the flexible and fixed exchange rate cases, exchange reserves obviate the need for "excessive" price adjustment. In fact one of the main macroeconomic reasons for holding reserves is to make it possible to achieve the best possible combination of price and quantity adjustment.

Having adequate reserves also allows the authorities to meet commitments to maintain convertibility and to resist pressures to place restrictions on current or capital account transfers. Reserves are also sometimes an important indicator of the coherence of a country's economic policy, and they are an

² The Bundesbank's reluctance to countenance increased use of the Deutsche Mark as a reserve currency lies behind the agreement among EMS member countries that they will only hold "working balances" in each other's currencies. This agreement was first made in 1972 at the time of the creation of the European monetary "snake" but later reaffirmed in connection with the establishment of the EMS, the earlier discouragement by the Bundesbank of the introduction of short-term instruments such as negotiable CDs and DM floating rate notes, potentially popular instruments with official holders, can also be explained in terms of its desire to discourage the use of the Deutsche Mark as a reserve currency. See Deutsche Bundesbank (1990).

³ Not only must markets be efficient but they must also be systemically robust. In other words, the market must not cease to function. Interest rate differentials may provide compensation for differences in the risks associated with individual assets, but they cannot provide compensation for the collapse of the entire market. Moreover, it is also essential that the market be efficient for all types of assets in the portfolio. If there are some assets which the markets price accurately but others that they do not, the investor should not be indifferent to the types of assets he holds even if the market in some assets is efficient.

ultimate line of defence in conditions when its creditworthiness is subject to doubt and foreign borrowing ceases to be a realistic option. In addition reserves can be used to influence domestic monetary conditions. In fact the exchange market is sometimes wider, deeper and more liquid than markets in domestic securities.

Reserves are one of the main sources of central bank revenue and the fountainhead of seigniorage. In countries where the central bank surrenders its income to the state, this revenue reduces the *ceteris paribus* tax burden. In any case, an adequate return on the exchange reserves underpins central bank independence.

The central bank is, however, a public sector institution and can be expected to pursue public goals. It is not so much the owner of the exchange reserves as their custodian, and it will be stripped of its monopoly on money creation either *de jure* or *de facto* if it abuses its power and maximises its profits. For this reason, if for no other, the central bank can be expected to manage the reserves for the greater good of the community. If it does, it is tempting to look at them as the "cash balances" of the country.

In this view holding reserves involves a cost since the rate of return on liquid assets is lower than that on less liquid ones. Accordingly reserves should be as small as possible, with the optimal level being determined as the point where the opportunity cost of holding reserves equals the increase in welfare associated with the ability to achieve the optimal amount of price and quantity adjustment. Although elegant, this prescription is hollow because it is impossible to determine even approximately the cash value of "the optimal amount of price and quantity adjustment" and therefore the amount of revenue that should be foregone.

Viewing reserves as the "cash balances" of the country would seem to suggest that their currency composition should correspond to the pattern of external payments. However, it is not at all obvious just what that pattern is, particularly in a country which has jettisoned exchange controls and experiences large two-way financial flows. Moreover, since these financial flows respond to interest rate differentials, they are not autonomous but depend critically on policy actions.

One traditional way to assess the pattern of payments is to look at the structure of trade. After all, the true value of an asset - reserves - depends on ultimately on the consumption flows - imports - it gives rise to, and the only way that a country can earn the income to repay a debt is through net exports.

This thinking underlies several portfolio theoretic studies of the currency composition of official reserves. Modern portfolio theory allows an optimal portfolio to be identified on the condition that the objectives of the decision-maker are stable, consistent and clearly specified. Central banks have a variety of goals, which are not necessarily fully compatible one with another, frequently implicit and may vary in importance over time.

One way to contend with this problem is to borrow an assumption from the intertemporal version of portfolio theory (Merton (1971) and Merton (1973)), and postulate that economic agents (central banks) maximise the utility of present and future consumption. The choice of the consumption basket is crucial. If it comprises domestic goods and is valued in nominal terms, there could be an incentive to follow a lax monetary policy so that the currency will depreciate and capital gains (in domestic currency terms) will accrue to the central bank on its reserve holdings.

Postulating such behaviour is both irrational and unrealistic. It is irrational because it implies that the central bank suffers from a virulent form of money illusion. The depreciation of the currency will mean that a smaller amount of imports can be bought with the capital gains recorded in domestic currency and inflation at home will mean that fewer domestic goods can be purchased with the accrued earnings and that residents will reduce their cash holdings, thus lowering the central bank's seigniorage. It is unrealistic because one of the principal tasks of the central bank is to ensure price stability; it does not make sense to posit behaviour that clashes with this responsibility. For this reason, such a basket is rarely used in analysis of central bank portfolio decisions.

Instead, it is maintained that the central bank should maximise, or should be assumed to maximise, the utility from the consumption of a basket of imported goods valued in real terms (see Macedo (1983), Kouri and Macedo (1978), Lehmuussari (1987) and Dellas and Yoo (1991)). One common way to value this basket is to construct a price index using data on import shares, bilateral exchange rates and the prices of global tradables.

Import shares have been generally been measured in terms of either invoicing currencies (Dellas and Yoo (1991)) or country of origin (Lehumussaari (1987)). The argument for using invoicing shares is that this reflects actual payment patterns and the way in which reserves would have to be used if they were drawn on to pay for imports. The argument for using country shares is that the terms of trade are determined in part by developments within the country producing the exports while the choice of the invoicing currency is determined by custom and convenience. Although vigorous and operational, this approach suffers from two serious flaws. Firstly, it is based on a stylised view of the world, i.e. that money is used to buy goods - exchange reserves to buy imports - which may have been serviceable prior to the abolition of capital controls but which no longer approximates the facts in the industrial countries. The pattern of payments does not correspond to the pattern of trade. In fact measured in terms of the volume of total international payments, the great bulk of transactions are financial, not commercial in nature.

The second shortcoming of this view is that it fails to recognise that the principal use of exchange reserves is for intervention, not for the payment of

import bills. To be sure it possible to argue that the ultimate use of an asset may be to generate consumption flows and that in the case of the exchange reserves the consumption flows would take the form of imports. But it is likely to take a very long time before the stock of reserves is actually drawn down to pay for imports. For that reason it is not at all clear that today's currency composition of reserves should correspond to today's currency composition of trade, as trading patterns may shift radically before the reserves are ever used for this theoretical purpose.

An alternative way to evaluate reserve holding decisions is to treat the reserves as "transactions balances" of the country and apply the tools used to determine optimal money holdings. To be sure some adjustments have to be made to take account of the fact that central banks carry out transactions in several currencies, not just one. Nevertheless, a money demand approach that makes allowance for foregone earnings and encashment costs can easily be extended to a multi-currency framework. The cost of converting a currency in the investment portfolio into one that can be used for intervention is analogous to the cost of encashing a long-term claim.

One advantage of this "transactions demand approach" is that it focuses attention on precisely those types of operations that the central bank undertakes, rather than simply postulating that the reserves are used to pay for imports. It also provides a means of reducing the somewhat artificial distinction between intervention and investment decisions. In the transactions demand approach two factors beyond risk and return have a bearing on the reserve investment decisions. One is the cost of converting exchange reserves into a payments or intervention medium and the second is the likelihood that such costs will have to be borne.

There is evidence to suggest that the pattern of payments and transactions does affect the currency composition of official reserves. For example Dooley et al. (1989) found that for the developing countries held a higher proportion of the reserves in currencies in which they expected to make debt service payments. Moreover the existence of conversion costs may also explain why Horii (1988) found that the share of dollar assets in total reserves was much higher in both 1979 and 1984 than would have been warranted by considerations of risk and return alone.

It might well be argued that the cost of converting a currency in the wholesale market is so small (about 5 to 10 basis points) that it should not have a bearing on investment decisions. One answer to this is that the cumulative costs may be greater but a more serious one is that, if financial markets are efficient, conversion costs will be a dead loss not offset by considerations of risk or return on other assets.

Taking conversion costs into account has several implications for the pattern of reserve investment. Firstly, it suggests that a certain basic amount should be held in currencies used for intervention, with those basic amounts being

determined by the extent to which the central bank wants to reduce exchange rate fluctuations and its willingness to use other policy tools to achieve this goal. Secondly, it suggests that the allocation of reserves across different currencies should not be fixed but should vary with the need to intervene, which by and large should decline as the size of total official holdings grows. Holdings of "non intervention" currencies should, *ceteris paribus*, increase as total reserves expand because then there is less likelihood that conversion costs will have to be incurred.

It should be noted that a "transactions demand" approach to reserve management does not preclude the application of portfolio theoretic tools. It can be incorporated into an approach which assesses risk and return. Conversion costs, themselves a function of the bid-ask spread in the spot market and the probability that invested reserves will have to be converted into a transactions medium, will enter with a negative sign in the objective functions.

Another consideration is whether decisions about the composition of reserves should be made with respect to gross or net holdings. If the reserves are seen as assets of the central bank, taking into account domestic currency liabilities (bank notes, reserve deposits of banks) will not be easy. However, if the domestic currency is linked to a foreign currency, it can be argued that domestic currency claims should be viewed as being denominated in terms of the currency to which the country pegs. In the case of Finland this would be the ECU.

Risk minimisation would suggest that the currency profile of the country's reserve assets should corresponded to the currency profile of its liabilities. However, it can be argued that this reasoning suffers from a serious of "fallacy of composition". Aggregate assets and liabilities may be perfectly matched, but the individual positions of individual agents can be seriously mismatched. There can be no presupposition that gains from exchange rate changes accumulated by one agent will be used to offset the losses recorded by another in a market economy where decision making is decentralised. For this reason it may not be appropriate to use aggregate data on the currency composition of liabilities.

The role of the ECU in a reserve management strategy

For a country linking its currency to the ECU, there are a number of sound reasons for holding a portion of the reserve portfolio in ECUs. Risk reduction, the testimony about the strength of the ECU commitment and the danger that intervention transactions in other currencies will run counter to the spirit of exchange market co-operation all speak in favour of this.

Risk considerations and the perverse incentive structure associated with the portfolio consisting of foreign exchange assets and domestic currency

liabilities provide one of the strongest reasons for holding reserves in ECUs. Let us consider the exchange rate risk question first. A central bank confronts an unusual portfolio problem. Unlike almost all other banks, it faces a large structural and unhedgeable exchange rate risk. Its liabilities are denominated in domestic currency while a large portion of its assets are in foreign currency. Although the exchange risk associated with its reserve asset portfolio can be managed with standard portfolio management techniques relying on diversification and risk and return calculations, the overall exchange risk can only be eliminated by tying the currency irrevocably to one or more for foreign currencies and holding reserves in that currency or set of currencies.

The unhedgeable exchange rate risk faced by the central bank creates some peculiar, and possibly perverse, microeconomic incentives. Because the central bank is a domestic currency based investor, it will reap the benefits of any devaluation. The domestic currency value of its exchange reserves will rise, but there will be no change in the value of its liabilities. To be sure, this perverse incentive structure is muted by a tendency for agents to reduce their holdings of domestic banknotes in conditions of inflation, which will reduce the capital gains accruing to the central bank following a devaluation. But the persistence of demand for bank notes even in conditions of hyperinflation suggests that the micro-economic incentive is unlikely to disappear entirely.

Because the reserves are used as a barometer to gauge a country's performance and evaluate its intentions, it can argued that the decision to link a currency to the ECU should be accompanied by a shift in the composition of reserves in favour of the ECU. If the link with the ECU were irrevocable, holding a portfolio of Ecu-denominated assets would be identical to holding a portfolio of domestic currency assets. The risk associated with gains and losses arising from depreciation and appreciation vis-à-vis the dollar would be eliminated. In other words, the structural exchange risk confronted by the central bank would disappear. Holding reserves in ECUs and making this fact known might help to convince the market that the central bank was determined to maintain its ECU link. To be sure, it would still reap the microeconomic benefits of a devaluation, but holding a portfolio of ECU assets would be the first step toward reducing exchange risk and fostering credibility in the ECU link.

A country pegging its currency to the ECU should consider whether to hold an arsenal of assets denominated in ECUs for purposes of intervention. Intervention in this currency is more likely to be effective than intervention in either European currencies or dollars. One of the channels through which intervention works is by affecting relative supplies of money. For the country linking its currency to the ECU, any change in reserve holdings, irrespective of the currency used, DM or dollars, tends to alter domestic conditions, but it will in general not affect foreign monetary conditions. Foreign central banks can be

expected to neutralise any unwanted impact of official holders' purchases or sales of their domestic currency. To be sure under some circumstances, intervention may have a marginal impact on foreign monetary conditions. For example, European monetary conditions may be eased by a periphery country's dollar sales if the European countries are by chance attempting to support the dollar. However the impact will presumably be negligible, and, moreover, dollar sales by the periphery country would go against the spirit of exchange market cooperation. European countries, and perhaps also the United States, will be attempting to support the dollar while the periphery country is disposing of its holdings.

The effects of intervention in ECUs on external money conditions are less likely to be neutralised. There is no central bank which attempts to control the supply of private ECUs, and private ECUs are not factored into money supply calculations in ERM countries.

Intervention in ECUs cannot be a substitute for intervention in other currencies. Despite a rapid growth in secondary market turnover (from roughly \$50 billion in 1988 to almost \$300 billion for ECU bonds in 1991), markets in ECU assets are not as deep or liquid as those in dollars. Moreover it may be difficult to find a Finnish counterparty and thereby affect domestic monetary conditions directly. No Finnish bank is an ECU clearing bank and only one (SYP) is a member of the ECU Bankers' Association. Finnish banks also find it difficult to fund loans in all maturities in ECUs, and bid-offer spreads are higher in this currency than in others. At the end of June 1991, assets and liabilities denominated in ECUs accounted for only 2.3 and 2.5% of their total foreign currency assets and liabilities.

Because of the limited liquidity of ECU claims and the modest participation of Finnish banks in the ECU market, it might be reasonable to refrain from setting a specific percentage share for the ECU in the reserve portfolio but to vary it with changes in the size of the portfolio and the prospective need to intervene. Indeed, this would seem advisable as a general rule since the liquidity characteristics of different currencies vary. Even though markets in non-dollar instruments have expanded dramatically, markets in dollar-denominated claims remain by far the widest and deepest. For this reason, and because the US dollar is the principal vehicle currency, it would be natural to hold a larger share of dollar claims when reserves are low or expected to become so than when they are ample even though this might shift the portfolio away from the structure implied by narrow portfolio theoretic considerations.

If there are a range of arguments in favour of holding ECU reserves, there are also several caveats. One relates to the absence of a lender of last resort. Because official ECUs cannot be held by entities other than EMS members and a few designated holders, they cannot be used to settle private ECU transactions. Therefore neither the EMCF nor any EMS or EC institution acts as lender of last

resort. There is also no lender of last resort for operations among ECU clearing banks (see below).

Nonetheless, the absence of a single lender of last resort is probably not a fundamental flaw. Firstly, the scale of ECU transactions is so great that it is likely that some ad hoc solution would be found if a serious problem emerged in the ECU market. Secondly, given the dominance of public sector issuers, the credit risk associated with ECU claims is much smaller than for claims denominated in other currencies. Finally, most banks heavily engaged in ECU business are large banks in their own countries. Any problems that they might confront would in all likelihood not be confined to their ECU business, and any lender of last resort support provided to them by their local central bank would help to underpin the ECU market.

ECU clearing and settlements

The unique position of the ECU as a privately issued international currency makes questions of clearing and settlements fascinating and crucial. They are fascinating because they go to the very heart of central banking. They are crucial because clearing and settlement must be arranged in a way which avoids systemic risk.

When payments are made using a national money, settlement ultimately rests on changes in individual agents' claims on the central bank (banknotes or balances on accounts at the central bank). Because of netting and clearing arrangements, not every payment need involve a change in ownership of claims on the central bank. In fact, thanks to the banking system and the system of interbank transfers, the great bulk of payments, measured in terms of value, do not entail such a change. However in principle every payment is predicated on the presumption that it could be reduced to a transfer of ownership of claims on the central bank, and every payment leads at least indirectly to a transfer of ownership of such claims.

For this reason the central bank stands behind the payments system as a ultimate bulwark against systemic collapse. It can always create liabilities (banknotes or balances on accounts held by banks involved in the clearing process) which can be used in settlements. In addition it often oversees the soundness of banks involved in the payments system.

In the case of the private ECU, there is no such central bank underpinning. Because official ECUs cannot be held by private agents, liabilities of EMS institutions such as the EMCF do not provide the central banking foundation for private ECU payments. Instead such payments are settled through a purely private arrangement involving the main commercial banks engaged in deposit-taking and lending in ECUs. Use is made of a public agent, the BIS, but

the only consequence of this is to ensure impartiality and efficiency. Unlike a central bank, the clearing agent cannot create ECUs with same day value nor does it have any oversight responsibility for the commercial banks engaged in ECU clearing. In other words, the BIS does not act as a lender of last resort for the ECU.

The ECU clearing arrangements have evolved over time and are likely to evolve still further as the use of the ECU expands. Prior to 1982 ECU transactions were cleared by using the constituent currencies. In 1982 a handful of banks agreed on bilateral correspondent banking arrangements based on nostro and vostro accounts denominated in ecus. At present private ECU clearing is a multilateral cross border arrangement involving three sets of institutions: (i) 45 private commercial banks, (ii) S.W.I.F.T., a society which provides an infrastructure for passing on payments instructions and calculating the debit or credit position of each clearing bank vis-à-vis all other clearing banks and (iii) the ECU clearing agent at the BIS.

Settlement takes place on the same day by debiting and crediting non-interest-bearing sight ECU accounts held by the clearing banks with the clearing agent. These sight accounts, which cannot be overdrawn, were created as a result of the payment of constituent national currencies by the clearing banks into the clearing agent's accounts held with the central banks issuing the national currencies in question. Given the fact that ECU sight deposits pay no interest, the clearing banks have no incentive to increase the balances on these sight accounts. Moreover, even if they wished to, they could not add to their ECU sight balances with the clearing agent for same day value. Transfers through the national payments systems of most of the countries issuing component currencies take longer than transfers through the ECU clearing system.

Clearing takes place through a series of steps over the course of the day. Initial credit and debit positions are calculated for all payments due on that day. Banks then engage in bilateral lending and borrowing operations to reduce these positions. Once these positions are reduced below a critical level, accounts with the clearing agent are debited and credited. However, at no point can a sight account be over drawn. In the event that a bank did not have and could not obtain sufficient funds to complete settlement, all clearing operations would be suspended for that day. Credit and debit positions would then be re-computed on the following day among the banks that were free of problems.

Efficiency vs. robustness

The Achilles heel of this system is soundness of the counterparties. The system is only as strong as its weakest member. Should one of the clearing banks be unable to obtain sufficient credit from other banks in the system, the integrity of the

system would be cast in doubt. As the number of ECU clearing banks grows and the disparity in their size increases, the potential for such problems expands. So far, problems have been avoided, but in some cases only by altering systems of internal control designed to protect individual institutions. For example, in order to prevent excessive exposures from emerging, each bank has bilateral credit limits vis-à-vis others in the system. In some cases, banks have been obliged to exceed their bilateral credit limits so that clearing could proceed.

The arrangements have never been tested by the collapse of one of the clearing banks or even by the inability of a sound bank to complete settlement during the day in question, but it is clear that such an event would pose a clear challenge for the system. There are no procedures to ensure that settlement between other participants could proceed immediately. The current rules of call for the unwinding of all transactions and the recomputation of net positions amongst the banks which are able to settle. Since the exclusion of one bank might mean that the system was no longer "closed", ECUs might have to be obtained from outside the system.

Despite these current shortcomings, it does not seem that they are of sufficient concern to discourage the holding of reserves in ECUs. The scale of ECU transactions is so great that some ad hoc solution to a problem in clearing would in all likelihood be found. Moreover, the ECU clearing participants and the central banks of the countries where the ECU is actively used are aware of the deficiencies of the current arrangements and are attempting to make them more robust.

In the autumn of 1991, the central banks in the countries where ECU clearing banks are active established procedures to collateralise overnight ECU interbank loans. The Bank of England introduced two facilities which can be used by London-based ECU clearing banks to obtain overnight ECU funds.⁴ Under the first facility the clearing banks can borrow ECUs from the Bank of England against eligible ECU and sterling Treasury bills and bonds. The second facility allows banks which have made ECU term deposits at the Bank of England to use these deposits as security for overnight loans from other ECU clearing banks. The Bank of France has established a facility analogous to the second British arrangement for the seven ECU clearing banks located in France. All of these banks are French.

⁴ There are eleven ECU clearing banks located in London, but less than half are British owned. Japanese, Swiss and American banks participating in ECU clearing operations conduct their business out of London.

Conclusions

The ECU has now established itself as one of the most important currencies for reserve management, and it would appear that there are good grounds for a country explicitly linking its currency to the ECU to invest a notable portion of its reserves in this unit. Perhaps the strongest reason for doing so is the credibility of the ECU link. A country pegging its currency to one money but holding its reserves in another exposes itself to the vicissitudes of exchange rate changes. It seems to suggest that it is not fully determined to maintain the link with the ECU. To be sure, the nominal microeconomic gains of a devaluation would accrue even if reserves were held in ECUs, but there seems to be no good reason - apart from the need to have intervention currencies - to accept the exchange risk arising from the fact that the currency composition of reserves diverges from that of its liabilities.

A second reason for holding reserves in ECUs is to reduce changes in the value of central bank assets and the ensuing fluctuations in profits that result from fluctuations in the exchange rate of the dollar and other international currencies vis-à-vis the markka, which is linked to the ECU.

There are theoretical reasons for holding ecus for the purpose of intervention. As long as the aim of intervention is to keep the exchange rate relative constant vis-à-vis the ECU, it would seem more efficient to intervene in a currency directly relevant to the exchange rate than in some other currency, particularly as the effects on foreign liquidity are not likely to be offset when the ECU is used. In practice, intervention with the ECU intended to affect domestic liquidity cannot at present take place on a large scale. It is necessary to find appropriate counterparties. No Finnish bank is an ECU clearing bank, and the scale of their operations in ECUs is still rather limited.

The above considerations suggest that it might be sensible to vary the proportion of ECUs in the reserve portfolio according to the prospective need for such intervention, increasing its share as the size of the portfolio increases and reducing it as the size of the portfolio shrinks.

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