Annex I

Progress with European Monetary Integration

A milestone in European integration was achieved when the third and final stage of EMU began on January 1, 1999, with the introduction of the euro.[1] This annex provides a progress report on several aspects of EMU: European financial market integration; implementation and performance of the EMU payments and securities settlement systems; the outlook for pan-European capital markets; banking system consolidation and restructuring; and broader financial policy issues, including financial supervision, regulation, and crisis management.

The launch of the euro went smoothly, reflecting careful preparations for the considerable operational and logistical challenges of the conversion weekend. In the first months of EMU, the TARGET payment system effectively transferred liquidity between participating countries, and arbitrage substantially equalized money-market interest rates across the euro area. Even with these early successes, it should not be surprising that a single pan-European capital market has not yet emerged from the previous 11 national markets. Some features of the EMU infrastructure may be impeding the full integration of money and capital markets, especially for secured (repo) transactions, but these obstacles do not seem insurmountable and initiatives are under way to eliminate them. The consolidation and integration of bond, equity, and derivatives markets may be delayed, reflecting remaining challenges in removing problems related to the incomplete and inefficient cross-border links between securities settlement systems. Meanwhile, consolidation and restructuring in the European banking sector are taking place mainly within national boundaries, but it is likely that the single currency will gradually increase pressures for cross-border mergers and the creation of pan-European institutions. National supervisors and regulators are stepping up their coordination efforts and important agreements have been reached in the area of crisis management.

---

[1]The only additional remaining step is the introduction of notes and coins, which will take place by 2002. The "Eurosystem," which comprises the ECB and the 11 national central banks (NCBs) of the participating member states, has responsibility for monetary policy for the entire euro area. The Governing Council of the ECB (formed by the governors of the 11 participating NCBs and the six members of the ECB’s Executive Board) has responsibility for formulating monetary policy. The main institutional features of EMU and implications for financial markets are discussed in International Monetary Fund (1997), pp. 169–213, and International Monetary Fund (1998), pp. 104–110.

Money Market Integration and EMU Financial Infrastructure

Progressive Integration of the EMU Money Market

The introduction of a single currency has had an immediate impact on the money markets of the countries participating in EMU. Starting on January 1, 1999, NCBs could no longer tailor monetary policies to the needs of their national economies. While NCBs still implement monetary policy decisions, the ECB decides the timing and the size of refinancing operations on the basis of EMU-wide considerations. Therefore, effective links between national money markets are necessary to redistribute liquidity across national borders whenever national banking systems experience asymmetric liquidity shocks or do not obtain sufficient liquidity through the Eurosystem repo auctions.

The experience of the first months of EMU has been positive. The TARGET system has provided an effective means for cross-border payments. European private repo and money markets have been distributing liquidity across borders to ensure the convergence of overnight rates across participating countries. Financial systems and institutions that have excess liquidity are able to supply it to those that need liquidity across the euro area.

At the same time, some elements of the financial infrastructure are impeding full integration. Market participants have noted that some features of the euro financial infrastructure impede cross-border business within the euro area, especially when it involves cross-border transfer of collateral. These features include differences in market structure (such as the extent of bilateral interbank credit lines), national differences in infrastructure (such as payment and securities settlement systems), and national differences in policies (tax, legal, and regulatory environments, including differences in the legal treatment of repo operations). As a result, single integrated markets for money, repo, and securities will probably not emerge until many of the differences in market structure, infrastructure, and financial policies are fully worked out. Some of these features will be difficult and time-consuming to change, reflecting technical problems as well as conflicting interests between EMU financial centers.

The Supply of Liquidity: ECB's Auctions and Standing Facilities

Eurosystem instruments and operating procedures influence the initial distribution of liquidity to the euro-area banking systems[2] and also affect the functioning of unsecured and secured (repo) interbank markets in EMU. In addition, banks' bidding behavior at repo auctions and their recourse to the marginal lending and deposit facilities provide useful indirect information on the conditions in the money market.

[2]These procedures are described in European Central Bank (1998).

ECB's Main Refinancing Operations and the "Overbidding Problem"

The Eurosystem provides the bulk of liquidity to the banking system through weekly *main refinancing operations* (MRO) based on repurchase agreements with a maturity of two weeks. These tenders have been conducted as fixed-rate rationed allotment auctions, in which a fixed amount of liquidity is offered at a fixed interest rate.[3] Banks bid for a share of liquidity by offering collateral.[4] If total bids exceed total liquidity on offer, each bank receives a pro rata share of the liquidity, proportional to its share in the overall amount of collateral bid by all banks. For example, if a bank bids 10 percent of the overall collateral bid by all banks, it receives 10 percent of the liquidity offered by the ECB.

With this auction system, there may be incentives for banks to bid for a larger amount of liquidity than they actually need. Before the start of EMU, overbidding characterized Bundesbank repo auctions, which were conducted with a similar approach. At the start of EMU, banks were bidding more aggressively than pre-EMU German banks. During the first five months of EMU, the average allotment ratio (the ratio of allotted funds to total bids) was only 9.7 percent in EMU, compared with 18.4 percent in Germany during 1998. The stepped-up pace of overbidding might reflect the greater interest of EMU banks in obtaining liquidity directly from the Eurosystem, which may, in turn, result from concerns about the ensuing redistribution of funds by the interbank market, at least during the first months of EMU.

The fixed-rate auction system allows banks with the most collateral to collect more liquidity than needed at the auction, leaving some banks short of liquidity at the end of the auction.[5] In the first months of EMU, this was to some extent a problem for a number of reasons. First, some banks from countries that had previously not used a fixed-rate rationed allotment auction did not allow for the fact that they may have to bid for more liquidity than needed. Second, at the beginning of EMU, some banks had insufficient cross-border credit

---

[3]The fixed amount of liquidity to be allotted is not announced before the ECB has received all the bids. In principle, this would allow the ECB to vary the quantity of liquidity supplied on the basis of banks' bidding behavior. In practice, however, the very low allotment ratios (see below) suggest that the ECB's policy is far from giving banks all the liquidity they demand.

[4]The list of assets eligible for the Eurosystem's monetary policy operations is updated monthly on the ECB website. Both public and private assets are eligible. Initial margins and valuation haircuts serve as risk control measures.

[5]At the beginning of February, the ECB clarified that banks did not actually need to have collateral covering the full value of their bids, but only enough collateral to cover the allotted amount. Nevertheless, the variability of allotment ratios, ranging from 6.1 to 33 percent in the first six months, and reaching 100 percent on one occasion (April 6), makes it unlikely that banks bid greatly in excess of their available collateral.

lines or credit limits. Finally, in the first two months of EMU, it was costly for the less collateral-rich banks to acquire liquidity in the unsecured market, instead of at the ECB's auctions. During January and February 1999, the average overnight rate was some 10 basis points above the main refinancing rate (and exceeded it by 20 basis points for the first two weeks; see the top panel of Figure A1.1). These data are consistent with large banks crowding out both small banks and banks in countries with less eligible collateral.[6] More recently, these problems have eased, possibly reflecting an ECB policy directed at holding the overnight rate below the main refinancing rate[7] for most of the maintenance period that ended on March 23, which made it unprofitable for some banks to obtain more liquidity than needed at the repo auctions and to lend excess funds in the overnight market.[8] The decline in the overnight rate below the main refinancing rate was likely a consequence of the large amounts of liquidity that the ECB injected during March. In recent months, despite persistent overbidding (as shown by the still very low allotment ratios), the consequences of any potential crowding out have subsided as the ECB has been able to reduce the spreads between the overnight rate and the main refinancing rate.

To eliminate at the source the distribution problems associated with overbidding in fixed-rate fixed-quantity auctions, the ECB could shift to flexible-rate[9] or variable-quantity tenders that could encourage banks to bid only for the liquidity they actually need. The ECB has indicated it is likely to retain the current fixed-rate fixed-quantity auction format for the time being, as it allows the ECB to both signal its view on the appropriate level of interest

---

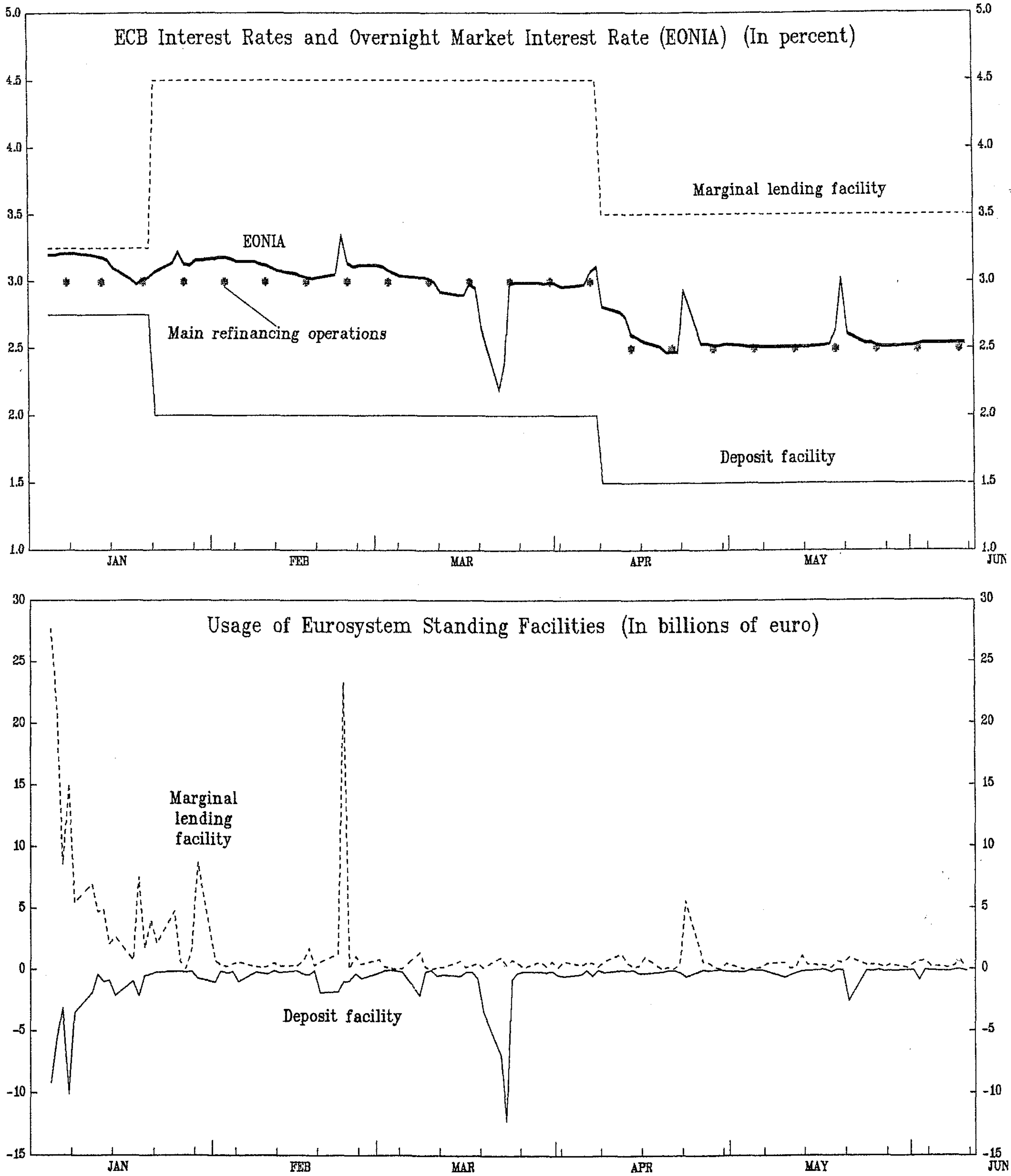
[6]According to market participants, in this respect, the structure of the euro money market is not much different from the structure of domestic money markets prior to EMU. In domestic markets, large banks tended to collect most of the liquidity and could squeeze smaller banks in the unsecured market.

[7]Some observers have noted that because the overnight rate is an unsecured rate (unlike the MRO rate), the overnight rate should normally trade slightly above the MRO rate.

[8]The first maintenance period of the euro era ran from January 1 to February 23. Subsequent maintenance periods run from the 24th of the month to the 23rd of the following month.

[9]Prior to EMU, "American" flexible-rate tenders (in which allotments are made at the individual rates bid by participants) were mainly used in Austria, Italy, Portugal and Spain; "Dutch" flexible-rate tenders (in which allotments are made at a common rate) were used in Ireland; fixed-rate tenders, with either fixed or variable quantities, were mainly used in Finland, France, Germany, and the Netherlands. (See Aspetsberger, 1996, Table 3). The choice between fixed-rate and flexible-rate tenders mainly reflects the central bank desire of providing clear interest rate signals, while the choice between "American" and "Dutch" flexible-rate tenders depends on their impact on central bank revenues.

Figure A1.1. ECB: Interest Rates and Standing Facilities,
January 4-June 11, 1999



Sources: Bloomberg Financial Markets L.P.; Datastream; and European Central Bank.

rates and convey the information it has about the liquidity needs of the euro system. In addition, experience with fixed-rate variable-quantity auctions (in Finland, for example) indicates that such operations could increase volatility in interest rates in unsecured money markets and could require frequent fine-tuning operations to reduce volatility.

Recourse to ECB's Standing Facilities

Banks in EMU can resort to the ECB's marginal lending and deposit facilities to borrow or deposit overnight liquidity with the Eurosystem. As the recourse to these facilities is unrestricted for a bank having sufficient eligible collateral, the interest rates on them define the floor and the ceiling for overnight rates. In principle, banks would use these facilities only when market rates approach those available through the facilities; otherwise, banks could obtain better terms in the market. In practice, during the first months of EMU, banks made extensive use of the deposit and lending facilities even when overnight rates substantially differed from the rates on the facilities (see bottom panel of Figure A1.1). These episodes cannot be easily explained by intraday interest rate developments.[10] On several occasions, both facilities were used for considerable amounts on the same day. There have also been instances of spikes in the overnight rate despite apparently ample aggregate liquidity in the system.[11] These occurrences—whose frequency has diminished in recent months—suggest that, at the start of EMU, the interbank market may not yet have been intermediating funds effectively. Moreover, in countries with relatively efficient interbank markets, deposit and lending facilities have been utilized less frequently and to a lesser extent,[12] although the heavy reliance on standing facilities mainly reflects start-up inefficiencies of EMU payment systems and banks' problems in managing payments flows in the new single currency environment.

TARGET: Prerequisite for Money Market Integration[13]

The launch of TARGET went relatively smoothly. Fewer problems were encountered than some market participants had expected, and some minor glitches were attributable to

---

[10]See Box 3 in European Central Bank (1999b), p. 42.

[11]See European Central Bank (1999a), p. 12.

[12]In Italy, for example, whose electronic interbank market is generally perceived as one of the most efficient in EMU, banks' recourse to the marginal lending and deposit facilities in the first four months of EMU accounted only for 1.7 percent and 7 percent of the total respectively, while the funds intermediated by the Italian banking system were more than 10 percent of those of the entire EMU area (see Banca d'Italia, 1999, p. 183).

[13]For a description of the TARGET payment system, see International Monetary Fund (1997, 1998).

operational errors by banks rather than shortcomings of the system. The only exception was the January 29 breakdown of the link between the French RTGS system and TARGET, which resulted in a number of rejected payments and a greater-than-usual recourse to the Eurosystem standing facilities.

Some market participants[14] had suggested before the launch of EMU that the opportunity cost of the collateral needed to obtain intraday credit in TARGET, and its relatively high price per transaction, might encourage banks to send high-value payments—the kind of payments with potential systemic risk—through alternative netting schemes. The first months of EMU have helped dispel these concerns, as most cross-border high-value payments have been sent through TARGET (Figure A1.2).[15]

The statistics on the first five months of operation of TARGET are reassuring, but it may take some time before judgment can be reached about the role that TARGET will play. First, the distribution of payments observed in the first five months might change—increasing or diminishing the share of TARGET—when the total number, and value, of cross-border payments sent via TARGET, the clearing system of the European Bankers' Association (EBA), Euro Access Frankfurt (EAF), and the French Paris Net Settlement (PNS) will increase in future months with the gradual closure of the numerous remaining correspondent banking accounts. (This prospect is made more likely by the fact that the total volume of cross-border payments sent via the four main payment schemes is currently well below that estimated before the start of EMU). Second, in view of some technical problems encountered in the initial phase (see below), the overwhelming concern with cross-border payments has so far been timing rather than cost; this may have favored TARGET.[16]

The multiplicity of payment systems available for sending cross-border payments within EMU and the preference of different groups of banks for different systems have created some problems in the coordination between paying and receiving banks. In the

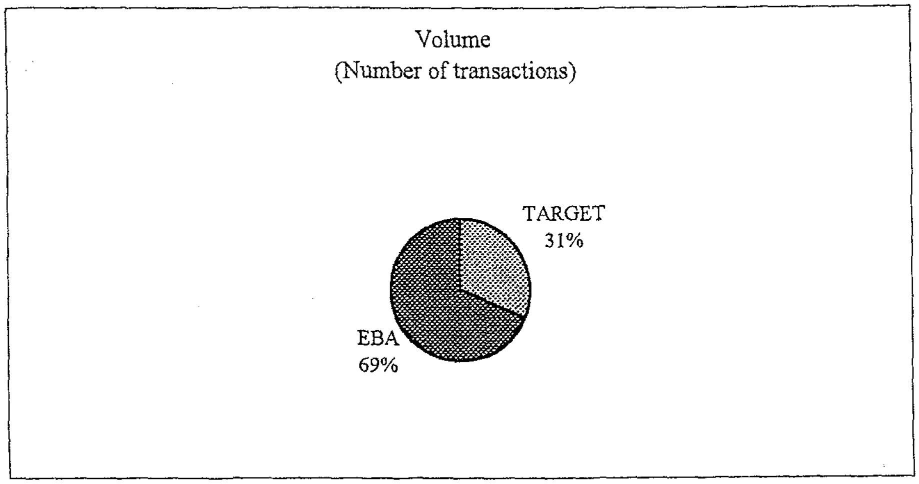
---

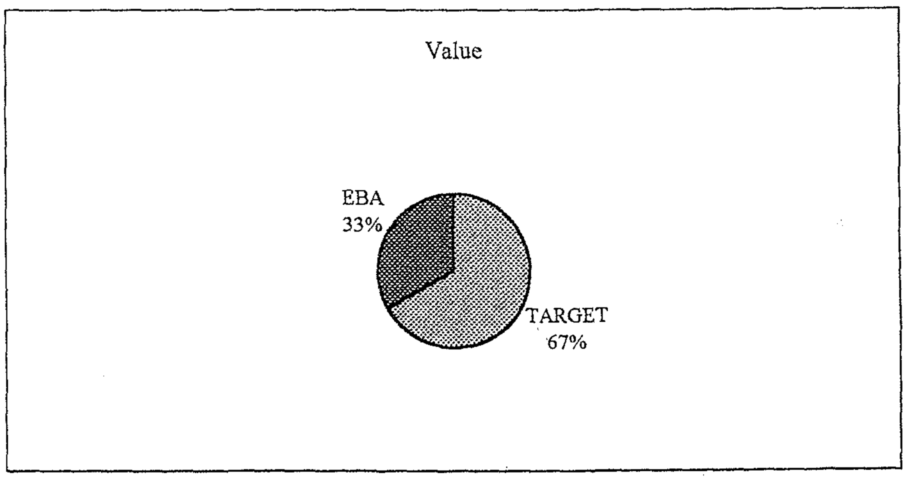
[14]See International Monetary Fund (1998).

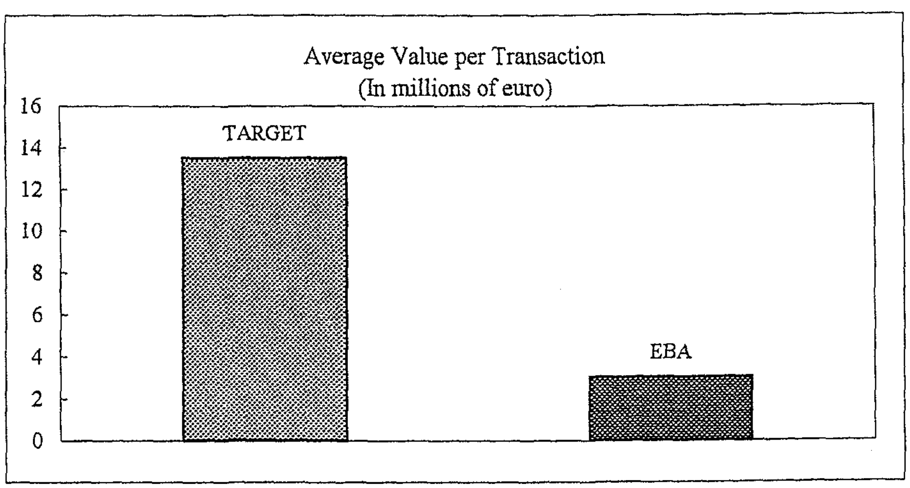
[15]The main competitor of TARGET for cross-border payments is the net clearing system of the European Bankers' Association (EBA). In addition, cross-border payments can be processed also by the net clearing system owned by the Landeszentralbank in Hessen (Germany) called Euro Access Frankfurt (EAF), and the French Paris Net Settlement (PNS), formerly called Système Net Protégé. Whereas EBA payments can all be classified as cross-border and TARGET cross-border payments are clearly identified in the ECB's statistics, it is not possible to know the cross-border share of EAF and PNS payments, part of which are domestic.

[16]Some payments recorded in TARGET are actually transactions within the same banking group. An example are the €13–14 billion of TARGET payments between U.K. banks and their branches on the continent that are exchanged at the beginning and end of each day.

Figure A1.2. Distribution of Cross-Border Payments in EMU Between EBA and TARGET, January-May 1999 1/







Source: European Central Bank.

1/ Average for the months of January-May 1999.

absence of *priority rules* regarding the system through which cross-border payments are to be sent, in the first few months after the launch of the euro, a receiving bank did not know whether it would receive funds directly via TARGET, through one of its correspondent banking accounts, or in the account of another branch of the same bank. These difficulties prompted some bank associations to forge common understandings and practices, which have helped to ease some of these problems.

A remaining issue concerns the *timing of payments*. In an RTGS system, payments could, in principle, be evenly distributed during the day. Within TARGET, however, there has been a tendency for some large payments to be sent late in the day, which often causes banks to scramble to meet obligations just before closing. Such timing problems seem to stem from a number of factors, including preferences to delay payments and thus minimize demand for costly intraday liquidity.[17] If all banks pursued such a liquidity management policy, there would be a substantial risk of gridlock. Concerns have also been raised about the impact of some bank practices on liquidity within TARGET. Banks reportedly minimized their need for costly collateral by requesting payments via TARGET, which settles during the day, while making payments with EBA, which settles at the end of the day.

In sum, while TARGET seems to have worked reasonably well during its first months of operation, some issues associated with the existence of multiple competing payment systems and the cost of intraday liquidity in TARGET remain. An option for EMU policymakers is to promote more orderly competition among payment systems. Discretion about the timing of payments, and the large number of alternatives for routing payments, may be unduly complicating liquidity management for European financial institutions, at a time when the complexity of banks' treasury operations has already increased owing to the new environment created by the introduction of the euro.[18]

---

[17]Late payments in TARGET are also said to be partly related to (1) the repatriation of intraday liquidity, which the out-NCBs have to raise; (2) the concentration of end-of-day liquidity positions of banks and their branches at one location (to centralize overnight liquidity management); (3) the fact that many banks have not yet implemented tools allowing dynamic intraday liquidity management; and last but not least, (4) the fact that other large-value systems close at 4:00 p.m., whereas TARGET closes at 6:00 p.m. This last has a twofold effect: (1) the balances of those systems are settled via TARGET and therefore induce cross-border TARGET payments between 4:00 p.m. and 4:45 p.m.; and (2) between 4:00 p.m. and 6:00 p.m., TARGET has a monopoly position.

[18]The ECB itself has acknowledged remaining problems in European Central Bank (1999c), p. 48*: "The present lack of market conventions has resulted in imbalances between payment systems and makes it difficult for banks to manage their payment flows efficiently. Therefore, the ECB is urging the industry to make a considerable improvement in this field very soon."

The Progress Toward a Single EMU Money Market

Cross-Border Interbank Loans and Deposits

Although liquidity factors and the outcome of ECB repo auctions may result in an unequal initial distribution of liquidity across banks and banking centers, an integrated and efficient EMU-wide interbank money market could help to effectively transfer liquidity to where it is most needed. The need to redistribute liquidity across national borders will likely lead to a larger share of cross-border interbank loans and deposits vis-à-vis other euro-area countries. By contrast, domestic interbank transactions will likely diminish. In the first three months of EMU, these tendencies were clearly recognizable in Italy and, to a smaller extent, in Germany and France, but no major or sudden change in the pattern of cross-border interbank flows seems to have taken place at the start of EMU (Table A1.1).

Interest Rates in the Unsecured Interbank Market.

Whereas quantity data on the recourse to the Eurosystem marginal facilities and cross-border interbank flows suggest that banks in each country still tend to deal primarily with their NCBs and with other domestic banks (as opposed to foreign banks), overnight interest rates data indicate that existing cross-border flows have been sufficient to largely eliminate differentials between countries in the unsecured money market. Figure A1.3, which plots the EONIA (euro overnight index average, i.e. the weighted average of the rates on unsecured overnight contracts reported by a panel of 57 major institutions in the euro area) against selected indices of national overnight rates, confirms that overnight rates in EMU have substantially converged.[19]

Although interbank average rates are well-aligned across markets and volatility around policy rates is not large, it is not clear that the eleven national money markets linked by TARGET are operating fully as a single market. Bid-ask spreads, for example, are wider in some markets than in others, possibly suggesting that some markets are more efficient than others in intermediating liquidity (Table A1.2). Moreover, whereas bid-ask spreads in EMU

[19]The coverage of the national indices used in Figure A1.3 is likely to differ from that of the EONIA panel. The ECB does not publish interest rates for the national components of the EONIA, but it has indicated that the dispersion among the average national interest rates reported by the credit institutions in the panel is minimal. After the first week of EMU, their weighted standard deviation fell below 2 basis points and stabilized around that level thereafter (see Box 2 in European Central Bank, 1999b, p. 35).

Table A1.1. Distribution of Interbank Loans and Deposits Across EMU Countries Before and After EMU

(In percent)

	Interbank Loans		Interbank Deposits	
	Before EMU	After EMU	Before EMU	After EMU
France				
Domestic	...	...	87.0	86.0
Other euro area	...	...	13.0	14.0
Germany				
Domestic	90.8	89.1	87.4	84.8
Other euro area	9.2	10.9	12.6	15.2
Italy				
Domestic	71.0	66.0	61.0	58.0
Other euro area	29.0	34.0	39.0	42.0

Sources: IMF staff calculations based on data from Banca d'Italia, 1999, *Relazione Annuale 1998*, Table aD15; Banque de France, 1999, *Tendances Monétaires et Financières* (March), Table 4.2; and Deutsche Bundesbank, 1999, *Monthly Report* (May), Table IV.1.

Notes: Data periods for before EMU are as follows: Germany (January-December 1998), France (December 1998), and Italy (June-December 1998); and for after EMU, the data periods correspond to January-March 1999 for Germany and Italy, and to March 1999 for France.

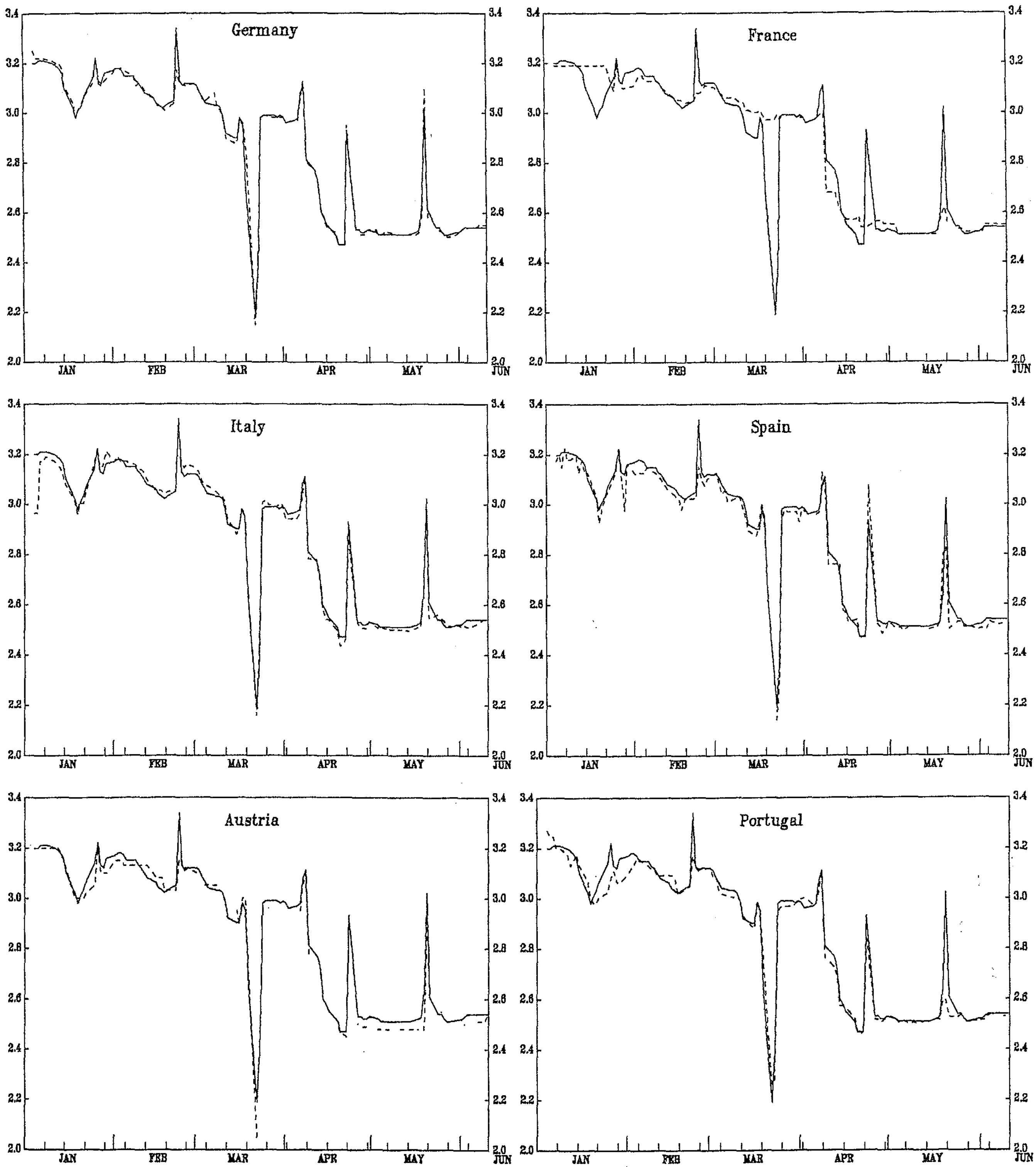
Table A1.2. Bid-Ask Spreads of Overnight Interbank Rates for Selected Countries, 1998-99
(In basis points)

	1998		1999	
	Mean	Median	Mean	Median
EMU Countries				
Austria	14.9	15.0	10.0	10.0
France	10.4	10.0	11.8	12.0
Germany	6.5	5.0	...	6.0
Portugal	...	...	...	7.0
Spain	6.4	5.0	9.1	10.0
Non-EMU countries				
United Kingdom	11.6	12.5	15.3	12.5
United States	...	6.3	...	6.3

Sources: Bloomberg Financial Markets L.P.; Datastream; Federal Reserve Bank of New York; Reuters; and IMF staff estimates.

Figure A1.3. Overnight Rates on Unsecured Interbank Funds
in the Euro Area, January 4-June 10, 1999
(In percent)

———— EONIA ---------- In respective countries



Sources: Bloomberg Financial Markets L.P.; and Datastream.

countries are not unusually large in relation to U.S. or U.K. spreads, in some countries they are higher than in pre-EMU Germany.[20]

Progress Toward Integration of Money Markets

The observation that in EMU there is not a single money market located in one of the EMU financial centers but rather eleven national markets linked to each other by reasonably efficient arbitrage may reconcile the evidence based on quantities (recourse to the Eurosystem marginal facilities and cross-border interbank flows) and interest rates. The initial distribution of liquidity at the ECB auctions would not be an issue if the redistribution of liquidity in the unsecured money market were fully efficient. That there were concerns (among market participants and NCBs) during the start of EMU about the initial distribution of liquidity suggests possible inefficiencies, which may reflect two factors. First, as the data on cross-border interbank deposits and loans seem to indicate, there may still be relatively few bilateral cross-border interbank credit lines to support cross-border lending in the unsecured interbank market. The limited number of such credit lines is partly a legacy of the pre-euro system; until December 31, 1998, the overwhelming majority of interbank credit lines were between banks in the same country, and it will take time for banks to establish new interbank relationships and assess the associated counterparty risks. In this regard, it is also possible that a single consolidated payment system for all EMU countries could have encouraged banks to extend cross-border credit lines more rapidly than in the current, nationally focused, system. A single European electronic money market, linked to a single real-time gross payment system, could also address some of the shortcomings of the current interbank market.

While there is little doubt that the EMU money market for unsecured funds is integrated enough to ensure the implementation of a single monetary policy across the euro area, it is not clear whether its remaining partial segmentation might have other consequences. There are some—but presumably minor—implications for market efficiency, associated with different bid-ask spreads across countries and with frequent recourse to costly marginal facilities. It is an open question how segmentation affects financial stability. On the one hand, segmentation could limit contagion and systemic effects from the failure of a single financial institution. On the other hand, it could complicate pricing and the distribution of liquidity during times of turbulence. In the event of a liquidity crisis, the unsecured money market might not yet be able to easily distribute the injected liquidity to the institutions that need it most, particularly in a situation in which some of these institutions might also be short of eligible collateral to access the ECB's lending facilities and might face

[20]The bid-ask spreads in Table A1.2 need to be interpreted with caution as they may not always reflect actual deals and may depend on the sampling techniques used by each data provider (Reuters and Bloomberg). For instance, many indications show that Paris is playing a major role in money market arbitrage within the euro area, but this does not seem to be reflected in lower bid-ask spreads, as one could expect.

binding limits on existing credit lines that prevent them from obtaining liquidity from other banks.

Repo Markets and Securities Settlement Systems

The development of a single EMU market for private repo transactions would appear to be more challenging than the development of a single unsecured interbank market because of the additional complexities associated with back-office functions within financial institutions and securities settlement systems. While national overnight repo rates seem to have largely converged across EMU (see, for example, Figure A1.4, which compares French and Spanish rates), the main issue regarding EMU repo markets is the absence of reliable and efficient links between national securities settlement systems, which appears to be hampering the cross-border use of collateral.

European securities are now deposited in 31 continental and national depositories in Europe (compared with 3 in the United States) and in a few international depositories (Euroclear and Cedel). While technology permits a single EMU-wide trading platform for all types of securities, it would be difficult to create a system from existing national systems that would clear and settle cross-border transactions with speed and safety. To support pan-European repo trading, these systems could be connected by real-time delivery-versus-payment links or consolidated into a few securities settlement systems.[21] Market participants have suggested that the choice between a centralized or decentralized market structure for securities settlement systems seems to be a politically sensitive issue because of its implications for competition among financial centers. So far, the decentralized model has prevailed, but existing national systems are being linked[22] and the legal problems associated with a multiplicity of different national repo contracts are being addressed.[23] Initially, these links will not be delivery-versus-payment, so that the cross-border use of securities will remain subject to credit risk (loss of principal), and, at a minimum, to liquidity risk. For this

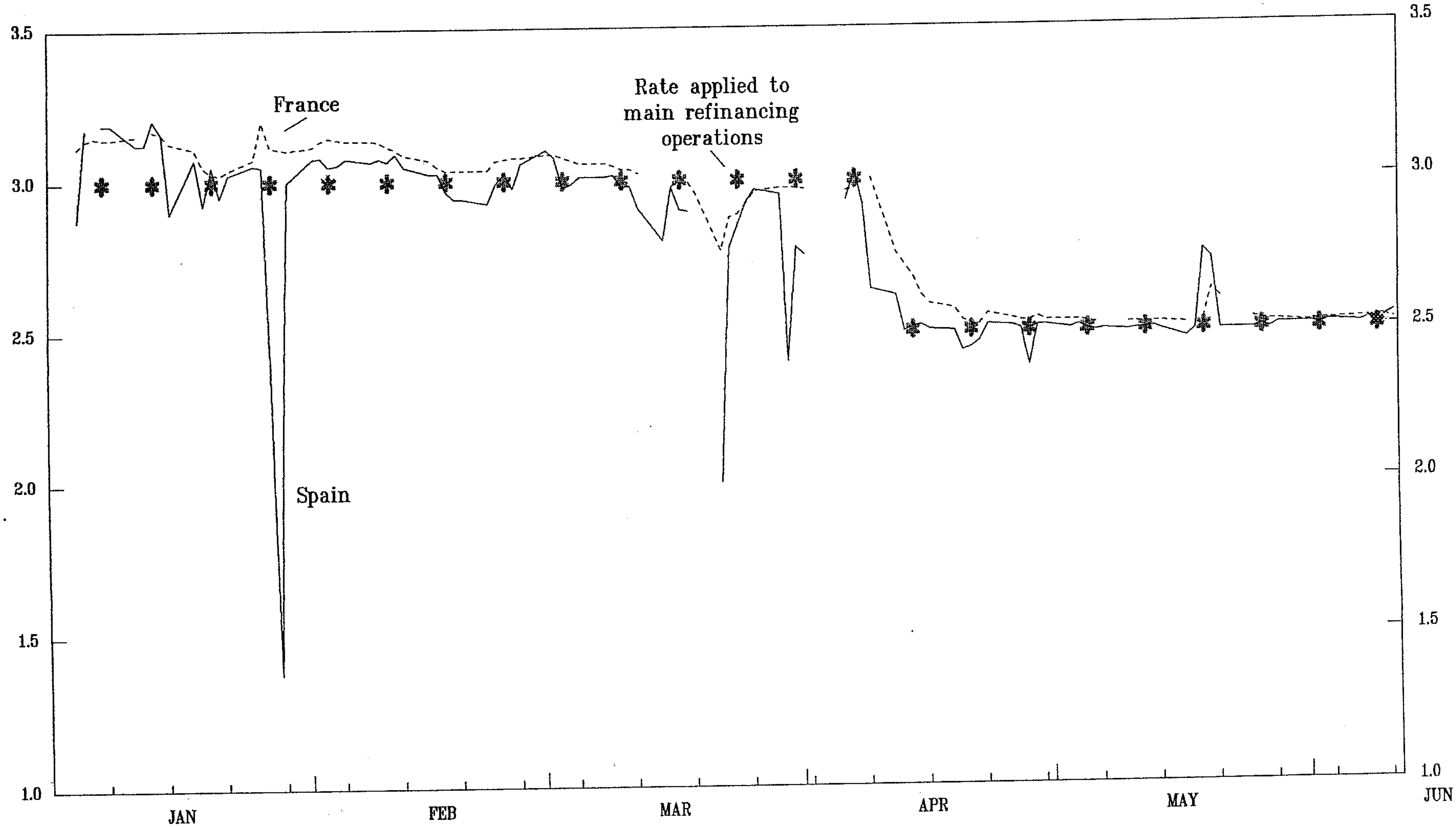
[21]There are already several means—such as becoming a member of a foreign securities settlement system or engaging the services of a private sector custodian—by which a counterparty in one country might hold a security in a securities settlement system in another country, even without any cross-border links or system consolidation, but these methods are not available (or attractive) to all investors (see Bank of England, 1999).

[22]In May 1999, the two large European international depositories, Euroclear and Cedel, proposed two competing systems of links and alliances between national securities settlement systems. In the same month, the ECB published a list of 26 links eligible for cross-border use of collateral in Eurosystem monetary policy and ESCB intraday credit operations on a free delivery basis.

[23]The project "Euromaster Agreement" has been designed to overcome legal problems.

Figure A1.4. France and Spain: Overnight Repo Rates, January 4, 1999–June 11, 1999

(In percent)



Sources: Bloomberg Financial Markets L.P.; and European Central Bank.

reason, counterparties are still reluctant to use these links for operations other than monetary policy operations.[24]

To allow for the cross-border use of collateral in monetary policy operations and intraday credit operations in TARGET from the very start of Stage Three of EMU, the Eurosystem created the correspondent central banking model (CCBM). Non-euro area NCBs also participate in the CCBM for the provision of intraday credit to TARGET participants connected to "out" RTGS systems. The CCBM basically consists of a network of accounts through which securities deposited by a financial institution at one NCB can be used by another institution as collateral in repo operations with another NCB. The model was only envisaged as an interim solution until a market alternative becomes available, but it has already proven successful since more than €65 billion are currently held in cross-border custody through the CCBM. The fact that collateralization is still done primarily on a domestic basis should probably be attributed to the national bias of counterparties' portfolios rather than to infrastructural barriers.

The use of the CCBM entails at least two constraints. First, given its temporary nature, the CCBM is not an automated real-time system. Procedures are therefore comparatively slow. In the first months of EMU, not all of these communication links between NCBs have worked efficiently. For example, some institutions that used the CCB links to obtain liquidity from the NCB in their country against collateral deposited at another NCB reportedly waited six hours for confirmation. Owing to this confirmation lag, the banks were required to undertake another (bridge) operation with their NCB, using domestic collateral deposited at the local securities settlement system, to cover immediate needs for liquidity. A similar need for bridge financing apparently exists when a repo is rolled over while NCBs exchange confirmation messages. These problems may be significant enough to prevent private institutions from using collateral cross-border in some instances. Second, the CCBM is construed in such a way that only the NCB in the country where the collateral was issued can act as correspondent central bank. Therefore, assets that had been moved out of the securities settlement system of issuance have to be repatriated before they can be used as collateral for central bank credit.

Facilitating cross-border transfers of securities may contribute to the development of a single repo market in EMU, but, more important, may also contribute to a reduction of systemic risk, owing to a larger share of collateralized cross-border interbank transactions. Options for improvements in the infrastructure for clearing and settlement might include strengthening the links between systems and improving individual systems, or creating a single unified system that could serve all European markets. While private solutions to these problems might be preferable to wholly public ones, there may be some scope for public policy to provide incentives and guidance.

---

[24]Additional links are currently under assessment.

Enhancing Efficiency and Integration of Unsecured and Secured EMU Money Markets

The limited integration of unsecured and secured money markets in Europe, particularly at the start of EMU, reflects a common set of features in these markets: the fragmented structure of trading and counterparty relationships and the fragmented (and in some cases weak) supporting infrastructures, including clearing, settlement, and payment systems.[25] These features reflect to a certain extent the decentralized operating procedures for the distribution of liquidity used by the Eurosystem. By entrusting the implementation of monetary policy to NCBs, the framers of EMU have (in effect) supported a level playing field in the competition among European financial centers. On the other hand, they have helped to perpetuate the nationally oriented infrastructure of payments and securities settlement systems, as this infrastructure is used to implement monetary policy in a decentralized fashion.

Summarizing the preceding discussion, there are three measures that might make the current system of European money and private repo markets more unified and efficient. The first measure could be the creation of a single, Europe-wide electronic market for unsecured funds. A second measure might be the improvement of the infrastructure for clearing and settlement. A third could be the creation of incentives to encourage more orderly competition among payment systems. At present, competition among payment systems allows discretion about the timing of payments and the large number of alternatives for routing payments are unduly complicating liquidity management for European financial institutions.

Outlook for Pan-European Capital Markets

The development of pan-European capital markets also seems to face some impediments, notwithstanding substantial pressures for consolidation in the European securities markets. As in other areas of financial services, there is excess capacity. Europe has about 25 derivatives exchanges, 20 derivatives clearing houses, and 15 stock exchanges. This fragmentation is costly to market participants that seek pan-European exposures. In an environment in which financial services such as insurance, investment banking, and asset management are increasingly offered by pan-European institutions to customers across Europe, consolidation would help to achieve market depth and reduce costs.

There appear to be some important obstacles to the creation of pan-European securities markets at two levels: technical obstacles that are (in principle) straightforward to

---

[25]Despite these obstacles, there are some reports of increased cross-border trading, especially in the repo markets, and reports that market participants have set up new or increased existing bilateral limits to spur trading in the unsecured interbank market.

overcome; and policy-related obstacles that will be more difficult to overcome, particularly as they may serve to protect domestic markets.

As with the money markets, problems in securities settlement systems and other back-office functions are likely to impede the creation of single pan-European markets for bonds, equity, and derivatives. For example, market participants suggested that the main difficulties in creating a pan-European market for blue-chip stocks are related to back-office problems and incompatibilities, particularly in the area of securities settlement. Some technical problems are related to differences in trading platforms across exchanges.

Some technical problems could be overcome, in part, through linkages among exchanges, as well as through outright mergers. However, the technical capabilities of linked systems would tend to be constrained by the weakest system. Alternatively, the success of prominent initiatives, such as Eurex, Euro-MTS, and the London-Frankfurt stock exchange initiative, might establish standards that could be adopted across Europe. Successful Europe-wide initiatives could also encourage the creation of new pan-European systems to handle back-office functions, including clearing and settlement systems for bonds, equities, and derivatives.

Second, and more important, there are a number of policy-related impediments to consolidation of exchanges across Europe. Among these are differences in tax regimes and in legal and regulatory environments across countries. These differences can raise considerable legal uncertainties about cross-border transactions. Regulatory arbitrage can create incentives for exchanges to migrate outside of EMU. There have been some official efforts to encourage harmonization, notably the EU's Investment Services Directive (ISD) and the Financial Services Action Plan of the European Commission, which was approved by the ECOFIN Council on May 25, 1999.[26] In some cases, the national implementation of this directive has been helpful in fostering European securities markets; for example, the "remote membership" provision of the ISD, which permits electronic access to foreign securities exchanges, contributed to the success of Eurex (a fully electronic exchange). In general, however, progress in harmonization has been slow. Market participants have noted that this degree of inertia might reflect the reluctance of some domestic authorities to level the playing field, because impediments serve to protect domestic markets and market infrastructures from competition.

As it is unlikely that these impediments will be addressed soon, market participants themselves may find ways around these barriers. For example, the owners of the successful Euro-MTS system for trading benchmark European government bonds incorporated their

---

[26]When ministers of finance or economic affairs meet as the EU Council of Ministers on issues in the domain of fiscal or macroeconomic affairs, the Council is referred to as the ECOFIN Council.

company outside of EMU (in the United Kingdom) as a broker-dealer for regulatory reasons. Exchanges could also be located outside the EU or offshore in order to avoid impediments.

The overall degree of integration is limited and varies from market to market. In the bond markets, no clear national center appears to be emerging for bond trading. In part, this may reflect differences in back-office functions, as custody, clearing, and settlement appear to continue to be organized largely along national lines. It may also reflect past practices, including the concentration of portfolios in domestic securities. As currency matching rules within EMU have become irrelevant with the introduction of the euro, institutional government-bond portfolios are becoming increasingly diversified and pressures for a single European bond market will grow. One possibility is that a system such as Euro-MTS could evolve into a platform for pan-European trading in a variety of European government securities, although competitors of Euro-MTS are likely to emerge in the near future.[27]

In the equity markets of continental Europe, although there are some precedents for foreign listings, trading is still largely organized along national lines. The increased focus on credit risk rather than currency risk, the shift from country to sector analysis, and the growth of institutional funds will provide a strong stimulus to the growth of European equity markets. The expansion of asset management and institutional investment is likely to create demand for a single liquid market in large-capitalization stocks. The realization of such a market is the objective of the London-Frankfurt alliance, although the precise timetable for full integration of the two exchanges remains unclear. In May 1999, discussions on the modalities of the initiative were opened to six new participants (the Amsterdam, Brussels, Madrid, Milan, Paris, and Zurich stock exchanges); it remains to be seen how broader participation will affect the pace of decision-making in the alliance. If the alliance moves forward, the European equity market may evolve into a three-tier system with small-cap stocks traded on Easdaq, AIM, or the Euro.NM system, midcaps traded on domestic exchanges, and large-caps traded on the London-Frankfurt system.

In the derivatives markets, Eurex (formed by the merger of the DTB and Soffex) is widely regarded as a success, rivaling or exceeding other global exchanges in terms of turnover. Eurex has taken a clear lead over its U.K. rival Liffe in long-term fixed-income products, although Liffe retains the lead in short-term fixed-income products. Liffe and other continental exchanges have expressed interest in alliances with Eurex, and Eurex is receptive to such arrangements, but little progress has been achieved. At the same time, Matif has formed an alliance with exchanges in Singapore and Chicago (SIMEX and CME) to trade their most popular products (the “Euro Globex” initiative). Italian and Spanish derivatives exchanges (MIFF and MEFF) would be included at some point as well, while Matif’s planned alliance with Eurex appears to have stalled.

---

[27]There is notably the case of Broker Tec, an electronic platform for trading of European and U.S. bonds developed by a group of large investment banks, whose introduction has been postponed to early 2000 to avoid overlap with Y2K preparations.

Looking ahead, and in view of the substantial impediments to full pan-European markets and the limited amount of consolidation that has taken place thus far, the most likely prospect might be the emergence of a two-tiered system of securities markets. At the top tier, one or two systems in each market could serve as centers for trading European benchmarks. For example, euro-area sovereign bonds may be traded principally on Euro-MTS; large-cap equities on the London-Frankfurt exchange; and derivatives on Eurex (particularly long-term fixed income derivatives) and Liffe (particularly short-term fixed income derivatives). A second tier of exchanges could handle securities that are of national but not Europe-wide importance, including non-benchmark government bonds, small- and mid-cap equities, and various derivatives.

Nevertheless, without pan-European banks, there will be limited pressure for the removal of the impediments that are preventing the formation of truly pan-European markets. As discussed above, some national authorities appear to sustain interest in continuing national securities markets and settlement systems. While cross-border trading platforms (like Euro-MTS in the bond market) help to integrate the "front-end" of securities markets, "back-end" inefficiencies in settlement systems remain. Until pan-European banks are formed, progress in the elimination of these settlement problems may be slow and the potential efficiency gains from the introduction of the euro may not be fully realized.

Banking System Consolidation and Restructuring

For the time being, both official preferences and market forces are encouraging consolidation and restructuring of European banking systems within national markets rather than across borders.[28] There are economic reasons for domestic consolidation, including the existence of economies of scale and scope from mergers of retail and universal banks within highly fragmented national systems. There are also cultural and legal features that discourage cross-border mergers. Importantly, authorities in some countries seem to be reluctant to allow

[28]The exceptions to this trend are the Scandinavian and Benelux countries, where some cross-border mergers have occurred, and, to some extent, Italy, where foreign participation is substantial. Italian banks with a significant participation of foreign investors account for close to half of the domestic deposits. However, apart from one holding of 22 percent (by France's Crédit Agricole), this mainly reflects a substantial number of holdings of just under 5 percent, the level at which Banca d'Italia approval must be sought. The role of foreign partners is still modest in France and negligible in Germany. In the case of France, however, the core shareholder group of the privatized Crédit Lyonnais, which controls 33 percent of the capital and voting rights, comprises three foreign banks and the French arm of a German insurance company, together with three French institutions. Some banks from Spain and Scandinavia have instead expanded cross-border into non-EMU (and, indeed, non-EU) countries with the objective of preserving profitability and increasing their size and market value as a possible defense in the ongoing process of consolidation.

increased foreign participation until the process of domestic consolidation has produced "national champions" that are judged large enough both to discourage takeovers by foreign banks and to potentially undertake cross-border acquisitions themselves.

While there may be reasons for consolidation to continue within national banking systems, there are constraints on the extent and the nature of domestic consolidation. For example, in France and Germany a majority of domestic banking assets are located with banks with legal and ownership structures that largely insulate them from the consolidation efforts of commercial banks. Absent a change in these institutional factors, the pressures to increase size might inevitably lead large banks to look beyond national boundaries even in the face of incomplete domestic consolidation. Further, once one big merger shows that cross-border consolidation is under way, the relatively small number of attractive targets in some countries may lead to a "floodgate" effect as banks will wish not to be left out of the process.[29]

There are indications that national authorities sometimes influence the consolidation process involving domestic entities, as in the case of the declared opposition of some supervisors and regulators to hostile takeovers in the banking sector. In France, the authorities expressed a desire for the three large banks (BNP, Société Générale, and Paribas) involved in takeover bids to come to an amicable agreement. In Italy, the authorities expressed a desire for further consolidation, but the Banca d'Italia's opposition to two proposed mergers (Unicredito and Banca Commerciale Italiana, and San Paolo-IMI and Banca di Roma) was in part attributed by market participants to the hostile nature of the bids.[30]

Against the background of these trends, there have been some important recent developments in the restructuring of the banking sector in continental Europe, especially in France and Italy. Privatization in *France* has culminated in the sale of Crédit Lyonnais and the intended sale of Crédit Foncier in July 1999. Meanwhile, reform of the publicly controlled savings bank system has made headway. Pending legislation will transform the savings bank system into a cooperative system, with state participation limited to a core minority interest held by the state-owned Caisse des Dépôts et Consignations. Consolidation, however, remains elusive. Most recent mergers and acquisitions either involved firms with little overlap in lines of business or were conducted under the assumption that redundant employees would not be aggressively shed. One cross-border merger involving the specialized segment of credit to local governments has, however, performed well and is expected to be further advanced by the future introduction of mortgage bonds in France.

[29]In a related context, it has been suggested that the recent large Spanish merger (Banco Santander and BCH) may have acted as a trigger for the subsequent domestic merger activity in France and Italy discussed below.

[30]See also Fazio (1999).

The reorganization of the banking sector in *Italy* has perhaps been the most accelerated in Europe, as illustrated by the 54 mergers that occurred in 1998, the successful privatization of the Banca Nazionale del Lavoro (BNL), and legislation providing incentives for “charitable foundations” to relinquish controlling stakes in banks in the next four years. Moreover, at end-June 1999, Banca Intesa and Banca Commerciale Italiana announced their plans to merge, creating Italy’s largest banking group and one of the ten largest in Europe. Foreign participation in Italian banks continued to grow, and minority interests of banks from several European countries in BNL, Banca di Roma, and numerous large Northern banks rose. Foreign investment has helped to foster mergers and acquisitions among large banks, some of which have also acquired smaller institutions. Mergers among top banks have, nonetheless, been hampered by two factors. First, several large institutions are linked through cross-shareholdings stemming from historical relationships, and minority interests have often diverged from one another. Second, the Banca d’Italia has indicated to market participants that it does not favor hostile takeovers in the banking sector. Market participants view these factors as temporary hurdles, which may influence the pairing of specific banks but will not stop the consolidation of the sector. The scope for consolidation is likely to increase with the sale of shares in banks that are currently controlled by “foundations,” as new legislation will force foundations to relinquish their interests in banks to retain the special tax status they currently enjoy.

By contrast, bank consolidation in *Germany*—while progressing—remains constrained. Growing pressure on cooperative banks—heightened by, inter alia, the phasing in of more sophisticated risk-management requirements—has resulted in mergers (168 in 1998) among cooperative (or mutual) banks. These mergers, however, did not lead to the development of centralized structures that would save operational expenses (e.g., the unification of back office and other support activities). Furthermore, these mergers have largely taken place within the umbrella organization of cooperative banks (*Genossenschaftsbanken*), rather than involving commercial banks. Some concerns have also been raised about the interest rate risk incurred by mortgage banks, owing to their increasing lending to regional banks, through the issuance of sought-after mortgage bonds (*Pfandbriefe*). In Germany, there is apparently little concern about the possibility of foreign takeovers, possibly reflecting low interest margins—due to the large share of savings, cooperative, and public banks (most notably the *Landesbanken*)—and the perception that the big private banks are strong. By contrast, it is generally expected that German banks will be bidders for banks in other countries.

Financial Supervision, Regulation, and Crisis Management

Will Supervisory and Regulatory Frameworks in EMU Keep Pace?

National supervision and regulation in many countries is being challenged by the increased blurring of commercial banking, investment banking, insurance, and asset management. Challenges are also likely to emerge within the euro area from the likely tendency toward greater reliance on securitized market-oriented finance than on bank-intermediated finance, the likely emergence of pan-European exchanges for securities and derivatives trading, and cross-border mergers between financial institutions.

National-level structures in most European countries divide supervisory and regulatory responsibilities among several agencies (with the notable exceptions of Denmark, Luxembourg, Norway, Sweden, and the United Kingdom, all of which recently introduced a single regulator). While European authorities consider the existing division of responsibilities at the national level to be working reasonably well, some rationalization is probably desirable and might enhance supervision. However, full-fledged reforms such as those associated with the Financial Services Authority in the United Kingdom seem unlikely in the near future; some uncertainty about the outcome of the U.K. reform is encouraging a wait-and-see attitude among most continental European authorities.

As for structures at the *euro-area level,* although the 11 EMU countries have transferred national monetary sovereignty to the European level, supervisory and regulatory responsibilities have remained a national responsibility. Cooperation currently occurs mainly through bilateral arrangements and meetings in multilateral forums. In the case of banking and securities regulators, there are now bilateral memorandums of understanding between virtually all EMU (and pre-in) countries, providing for both regular meetings and cooperation and information exchange when there are specific concerns or issues. Although memorandums of understanding are typically not legally binding arrangements, cooperation with counterparts in other countries is considered to have worked smoothly. For European banking supervision, the two major multilateral forums are the Banking Supervision Committee of the ECB, a senior-level committee for cooperation between national supervisors, and the Groupe de Contact, a lower-level group that addresses cases involving individual banks. European authorities are generally satisfied with the way EMU-wide cooperation has been taking place within these groups.

As long as banking systems remain primarily national and banks' businesses are mainly traditional (with limited reliance on both on- and off-balance-sheet securities transactions involving cross-border exposures), the current decentralized approach that relies on cross-border cooperation will most likely remain workable and effective. As pan-European financial markets and institutions emerge, and the reliance on securitized market-oriented finance expands, pan-European financial supervision and regulation may become more desirable and necessary. European officials have acknowledged these possibilities and seem to be taking a pragmatic approach to enhancing cooperation and coordination, and to considering alternative institutional arrangements. Recent developments in this area include (1) in February 1999, the signing of a multilateral European memorandum of understanding among securities supervisors that are members of FESCO (Forum of European Securities

Commissions);[31] (2) discussions about a strengthening of the multilateral mode of cooperation and information sharing among banking supervisors; and (3) the creation of a high-level group of representatives of EU finance ministers focusing on supervisory developments in EMU (e.g., consolidated in addition to sectoral supervision, the appropriate relationship between the central bank and the supervisory authority, and the need for some form of European-level supervision).

There seem to be different degrees of enthusiasm among European officials about centralization, and the development of a single euro-area supervisor seems to be a long way off. By contrast, once a pan-European exchange for securities—like the pan-European platform for blue chips currently under preparation by the London Stock Exchange and the Deutsche Börse—is created, a central securities supervisor and regulator would become more likely.

Crisis Management

There has been agreement within the Eurosystem on crisis management procedures along the following lines. The ECB regards the adequacy of financial institutions' own risk controls as of utmost importance for financial stability. Where supervisory authorities are not satisfied that institutions' risk management is adequate, they will use available tools to avoid excessive risk taking. The Eurosystem believes it has mechanisms in place to contribute to the smooth conduct of policies by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system. The main guiding principles underlying these mechanisms are as follows:

- the provision of emergency liquidity assistance if and when appropriate is primarily a national responsibility;

- the associated costs and risks are borne at the national level; and

- mechanisms ensuring an adequate flow of information are in place so that any potential liquidity impact can be managed in a way consistent with the maintenance of the appropriate monetary policy stance, and any cross-border implications can be dealt with.

This agreement clarifies the framework for crisis management within EMU. Two issues remain: (1) whether decentralized arrangements will remain appropriate when pan-European institutions and markets emerge; and (2) whether arrangements are in place—although not spelled out to maintain "constructive ambiguity"—to ensure that the Eurosystem will effectively coordinate with the 11 national supervisors, treasuries, deposit

---

[31]The members of FESCO are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, and the United Kingdom.

insurance schemes, and EU authorities, in the event of a crisis involving a potentially insolvent institution.

While a decentralized framework may be adequate to manage a crisis involving a traditional bank operating at the national level with few cross-border interbank links, it may pose challenges in the event of a crisis with EMU-wide systemic implications. In a decentralized framework, it may be difficult to fully internalize the systemic implications of a bank failure. National authorities are likely to take into account the potential costs—that would be borne at the national level—of assisting a troubled institution, but it is not obvious that they would fully consider the benefits of avoiding the cross-border systemic implications of its failure. It is also not unreasonable to expect, even in the absence of pan-European institutions, that the introduction of the euro would increase the potential for systemic events in the European banking industry.[32] As discussed, banks are in the process of increasing the number and size of their cross-border interbank credit lines to ensure that they can borrow from and lend to banks across EMU. This implies a need for more cross-border interbank lines than before EMU, with a correspondingly higher systemic risk in case of financial problems in one banking system. To be in a position to assess systemic risk in a timely manner, there are arrangements to exchange information within the Eurosystem and with banking supervisors. Work is currently under way to enhance the capabilities of the ECB and the Eurosystem to monitor the EU financial system as a whole in cooperation with the NCBs and national supervisors.

For dealing with potentially insolvent institutions, the institutional framework in the EU is decentralized and relies on national legislation and arrangements, the exchange of information in the Banking Supervision Committee, and bilateral agreements to cope with cross-border spillovers. Although the Eurosystem will most likely be involved in crisis management, its actual involvement is not spelled out in laws and regulations. This decentalized approach is relevant in part because of practices associated with “constructive ambiguity,” which introduces a degree of uncertainty about the conditions under which emergency liquidity assistance would be provided to individual institutions or more widely through markets in crisis situations. Constructive ambiguity is regarded by some, but not by all, as a way to limit the adverse potential consequences of moral hazard. As has been discussed before (IMF, 1998, and Prati and Schinasi, 1999), in cases where constructive ambiguity is used to promote strategically a degree of uncertainty, there should be no ambiguity about the mechanisms or the allocation of responsibilities that will be called upon to resolve problems and crises.

[32] See also Padoa-Schioppa (1999), p. 6.

References

Aspetsberger, A., 1996, “Open Market Operations in EU Countries,” EMI Staff Paper No. 3 (Frankfurt: European Monetary Institute, May).

Banca d'Italia, 1999, *Relazione Annuale 1998* (Rome).

Bank of England, 1999, *Practical Issues Arising from the Euro* (London, June).

Banque de France, 1999, *Tendances Monétaires et Financières* (Paris, March), Table 4.2.

Deutsche Bundesbank, 1999, *Monthly Report* (Frankfurt, May).

European Central Bank, 1998, *The Single Monetary Policy in Stage Three: General Documentation on ESCB Monetary Policy Instruments and Procedures* (Frankfurt, September).

———, 1999a, *Monthly Bulletin* (Frankfurt, March).

———, 1999b, *Monthly Bulletin* (Frankfurt, May).

———, 1999c, *Monthly Bulletin* (Frankfurt, June).

Fazio, Antonio, 1999, "La Ristrutturazione del Sistema Bancario Italiano," testimony before the Italian Senate, April 20.

International Monetary Fund, 1997, *International Capital Markets: Developments, Prospects, and Key Policy Issues*, World Economic and Financial Surveys (Washington, November).

———, 1998, *International Capital Markets: Developments, Prospects, and Key Policy Issues,* World Economic and Financial Surveys (Washington, September).

Padoa-Schioppa, Tommaso, 1999, “EMU and Banking Supervision,” LSE Financial Markets Group Special Paper No. 112 (London: London School of Economics and Political Science, March).

Prati, Alessandro, and Garry J. Schinasi, 1999, “Financial Stability in European Economic and Monetary Union,” Princeton Studies in International Finance, No. 86 (Princeton, New Jersey: International Finance Section, Department of Economics, Princeton University, July).