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European Monetary Union and International Capital Markets: Structural Implications and Risks

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Abstract

This paper analyzes the structural implications of EMU for international capital markets. It discusses the potential size of euro capital markets and the existing roles of European currencies in international capital markets. The paper also examines the euro's impact on international securities markets, including the role of the ECB, the evolution of EMU securities markets, and aspects of systemic risk management. The implications for wholesale and retail banking markets are also discussed, as are the broader implications of the introduction of the euro for changes in international capital flows, international portfolios, and by implication exchange rates.

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Contents **Page**

SUMMARY

The introduction of the euro provides incentives for greater reliance on direct financing in European capital market by directly reducing transactions costs and removing the volatile currency-risk component of intra-EMU cross-border financing costs. These changes will focus markets on the remaining, much less volatile, components of risk and asset pricing, including credit, liquidity, settlement, legal, and event risks. If fiscal reforms are undertaken, a large pool of investable funds will flow out of the public sectors into European and international capital markets, all denominated in euro and seeking various tradeoffs between risk and return.

All these structural changes point in the direction of less segmented securities markets and open up possibilities for increased market integration, more uniform market practices, and more transparency in pricing. How far these processes will evolve depends on the degree of cross-border competition and the institutional structure for policymaking in EMU. In European banking, there is room for significant further consolidation at the retail banking level, where unlike at the wholesale level, competitive pressures have been resisted. There are private mechanisms through which consolidation can occur, but important barriers might prevent the necessary adjustments and create the need for public support of inefficient retail banking systems.

The euro is likely to surpass existing EU currencies combined as both a reserve currency and a currency of denomination for international financial transactions. A rebalancing of official and private portfolios and shifts in the pattern of international capital flows are likely to noticeably affect foreign exchange markets and the major domestic financial markets worldwide. Whether this implies a weak or a strong euro will depend on perceptions about the European authorities' ability to achieve fiscal consolidation and structural reforms (including in capital markets and retail banking systems), and the effectiveness and credibility of EMU monetary and exchange rate policies.

I. INTRODUCTION

If the process of European monetary integration remains on schedule, January 1, 1999 will see the beginning of the creation of the union of currencies of economically and financially diverse European countries. Regardless of the precise number of countries that initially join, a European Monetary Union (EMU) of any size will pose challenges, opportunities, and risks for both private and official participants in European and international financial markets. Although the introduction of the euro is a significant step toward European financial integration, it is by itself only one step in a long process. Previous steps have included: in the area of monetary and exchange rate policy, the creation of the European Monetary System (EMS) with the Exchange Rate Mechanism (ERM), and the Basle/Nyborg agreement; and in the area of financial integration, the adoption and still ongoing implementation of the European Union (EU) Second Banking, Capital Adequacy, Investment Services, and other financial directives.

Even with these important initiatives, European financial markets have tended to remain segmented, with banks retaining their strongholds in providing retail banking services, and with markets for debt and equity securities retaining distinctly national orientations. Hence, the achievement of the full potential financial market benefits of EMU is not assured. Much remains to be accomplished by market participants, by national authorities, and at the EU level to capture the efficiency gains of the envisioned single European financial market. Whether the introduction of the euro becomes a catalyst for change and finally creates the "critical mass" necessary to begin the completion of the financial integration process remains to be seen. What is clear, is that the establishment of EMU provides the opportunity to dismantle the barriers between the now segmented European markets for bank deposits and loans, securities, and payments and other financial services, and the opportunity for creating capital markets that rival the size, efficiency, and international importance of the U.S. markets.

The purpose of this paper is to survey the potential structural implications of EMU for European and international capital markets and to identify unresolved issues. Much is still unknown about key decisions and how market participants will react to them, and so the paper is necessarily conjectural. However, it attempts to identify outcomes conditional on the changes in incentives brought about by the introduction of the euro and EMU. Because the paper covers many areas, it might be useful to summarize its main themes and observations.

Regarding *financial intermediation*, the introduction of the euro is likely to encourage the further securitization of European finance, and it opens up possibilities for increased market integration, greater uniformity in market practices, and more transparency in pricing. How far these processes will evolve depends on the degree of cross-border competition and, perhaps more importantly, on EMU financial policies. Particularly important will be the evolving design and implementation of monetary policy operating procedures and whether they will be used to encourage or discourage the development of deep and liquid euro EMU-wide securities markets.

In European *banking* systems, although restructuring through consolidation has occurred at the wholesale level, where global competition reigns, there is room for significant further consolidation at the retail level, where competitive pressures have been resisted. The main problem is that Europe is over banked with relatively inefficient local financial intermediaries. The euro is likely to enhance cross-border competition and encourage greater operational efficiency, and thereby provide additional pressures for consolidation. Although there are private mechanisms through which consolidation can occur, important barriers might prevent the necessary adjustments from occurring and create the need for public support of inefficient retail banking systems.

In the *international monetary system*, the euro is likely to surpass existing EU currencies combined as both a reserve currency and a currency of denomination for international financial transactions. As markets sort out this new currency, there is likely to be a rebalancing of official and private portfolios and shifts in the pattern of international capital flows. This rebalancing is likely to have a noticeable impact in global foreign exchange markets and in the major domestic financial markets worldwide. Changes in private portfolios and capital flows will reflect changing assessments by international institutional investors seeking various risk-return profiles in an unfamiliar tripolar global financial market. Whether this implies a weak or a strong euro will depend on perceptions about the ability of European authorities to achieve fiscal consolidation and structural reforms (including in capital markets and retail banking systems), and the effectiveness and credibility of EMU monetary and exchange rate policies.

The paper is structured as follows. Before analyzing the main issues, Section I of the paper examines the potential size of the domestic euro capital markets and the role of existing European currencies in international capital markets. Section II analyzes the structural implications for European and international securities markets, including the role of the European Central Bank (ECB) and its potential impact on securitization, the possible evolution of EMU markets for repurchase agreements (repo), interbank funds, bonds, equities and derivatives, and two aspects of systemic risk management. Section III looks at the implications for wholesale and retail banking markets. Section IV examines the broader implications of the introduction of the euro for changes in capital flows and international portfolios. Section V summarizes the paper.

II. Potential Size of the Euro Markets

In absolute terms, and compared to any reasonable benchmark, the introduction of the euro has the potential for creating the largest domestic financial market in the world. At end-1995, the *market value of bonds, equities, and bank assets* issued in EU countries amounted to more than $27 trillion (Table 1), roughly the same order of magnitude as world GDP (94 percent of world GDP). By comparison, the market value of assets in North America—with roughly the same population and GDP as the EU—amounted to about $25 trillion ($23 trillion in the United States). Were the initial union to include only the "core" countries (Austria, Belgium, France, Germany, Luxembourg, the Netherlands), the domestic euro market would

Table 1. European Union (EU), Japan, and North America: Selected Indicators on the Size of the Capital Markets, 1995

	Population (In millions)	GDP	Total Reserves Minus Gold	Stock Market Capitalization	Debt Securities 1/			Bank Assets 2/	Bonds, Equities, and Bank Assets 3/	Bonds, Equities, and Bank Assets 3/ (In percent of GDP)
					Public	Private	Total			
					(In billions of U.S. dollar)					
EU (15) 4/	369.0	8,427.0	376.3	3,778.5	4,814.4	3,858.6	8,673.0	14,818.0	27,269.5	323.60
EU (11) 5/	286.1	6,803.9	284.5	2,119.4	3,909.7	3,083.5	6,993.2	11,971.6	21,084.2	309.89
EU (8) 6/	181.8	5,054.8	199.2	1,693.8	2,330.4	2,611.0	4,941.4	9,456.0	16,091.2	318.34
North America	387.7	8,065.6	106.7	7,314.7	7,332.2	4,411.9	11,744.1	5,652.4	24,711.1	306.38
Canada	29.6	565.6	15.0	366.3	589.1	93.3	682.4	515.8	1,564.5	276.61
Mexico	94.8	246.2	16.8	90.7	30.7	23.5	54.2	136.6	281.5	114.34
United States	263.3	7,253.8	74.8	6,857.6	6,712.4	4,295.1	11,007.5	5,000.0	22,865.1	315.22
Japan	125.2	5,114.0	183.3	3,667.3	3,450.3	1,875.5	5,325.8	7,382.2	16,375.2	320.21
Memorandum items:										
EU countries										
Austria	8.1	233.3	18.7	32.5	105.9	105.4	211.3	457.7	701.6	300.66
Belgium	10.0	269.2	16.2	105.0	305.1	165.3	470.4	734.2	1,309.5	486.45
Denmark	5.2	173.3	11.0	56.2	142.1	187.8	329.9	155.5	541.6	312.55
Finland	5.1	125.0	10.0	44.1	94.0	50.2	144.2	143.5	331.9	265.54
France	57.5	1,537.9	26.9	522.1	681.9	803.6	1,485.5	2,923.0	4,930.5	320.61
Germany	81.7	2,412.5	85.0	577.4	893.6	1,286.0	2,179.6	3,752.4	6,509.3	269.82
Greece	10.5	114.3	14.8	17.1	99.7	5.8	105.5	63.9	186.4	163.06
Ireland	3.6	61.9	8.6	25.8	38.5	7.4	45.9	82.3	154.0	248.63
Italy	56.3	1,087.2	34.9	209.5	1,222.0	396.2	1,618.2	1,513.5	3,341.2	307.33
Luxembourg	0.4	19.3	0.1	30.4	1.0	15.8	16.8	555.0	602.2	3,124.56
Netherlands	15.5	395.7	33.7	356.5	210.4	177.3	387.7	808.0	1,552.2	392.28
Portugal	9.3	102.7	15.9	18.4	56.0	15.8	71.8	161.8	252.0	245.25
Spain	38.7	559.2	34.5	197.8	301.3	60.5	361.8	840.2	1,399.8	250.34
Sweden	8.8	229.2	24.1	178.0	233.0	185.7	418.7	202.8	799.5	348.84
United Kingdom	58.5	1,106.3	42.0	1,407.7	429.9	395.8	825.7	2,424.4	4,657.8	421.01

Sources: Bank for International Settlements; Bank of England, Quarterly Bulletin (November 1995); Bank of Japan, Economic Statistics Monthly (May 1996); Central Bank of Ireland, Quarterly Bulletin (Winter 1995); International Finance Corporation, Emerging Stock Markets Factbook 1996; Organization for Economic Cooperation and Development, Bank Profitability: Financial Statements of Banks, 1985-1994; and International Monetary Fund, International Financial Statistics and World Economic Outlook databases.

1/ Domestic and international debt securities shown by the nationality of the issuer.

2/ The 1994 data are shown for all banks except for the following: commercial banks plus savings banks for Denmark; commercial banks for Canada (consolidated worldwide), Greece, Luxembourg, and Mexico; domestically licensed banks for Japan (excluding trust accounts); commercial banks plus savings banks plus cooperative banks for Sweden; and commercial banks plus savings banks plus savings and loan associations for the United States.

3/ Sum of the stock market capitalization, debt securities, and bank assets.

4/ Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

5/ Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain.

6/ Austria, Belgium, Finland, France, Germany, Ireland, Luxembourg, and the Netherlands.

equal the size of Japan's domestic market ($16 trillion); and were the union to include in addition Ireland, Italy, Finland, Portugal, and Spain (EU11), it would roughly equal the size of the U.S. domestic market. An interesting aside is that the value of bonds, equities, and bank assets is roughly three times the respective GDPs in the EU, the United States, and Japan (about 320 percent in the EU and Japan and about 307 percent in the United States).

EU private entities overwhelmingly have tended to finance their activities through bank loans rather than through bond and equity financing, and U.S. entities have relied more heavily on bond and equity financing. In the EU11, bank loans comprised 57 percent of all outstanding financial assets at end-1995. By contrast, U.S. bank loans accounted for only 22 percent of total assets outstanding.

In contrast to government securities markets, European private debt securities markets are segmented, with all but the largest firms borrowing solely from a domestic investor base. In the EU11, for each dollar of bank borrowing, private firms borrowed, on average, only 50 cents through private securities issues. By contrast, in the United States, for each dollar of borrowing from banks, U.S firms borrowed slightly more than two dollars through debt securities issues. Japanese private entities were much closer to their EU, than to their U.S., counterparts.

Although the amount of EU private bonds outstanding appears to be sizable enough to suggest a reasonably large market for corporate bonds (roughly three-fourths the size of the U.S. market), the bulk of these bonds were issued by European financial institutions. Looking at this from the side of corporate balance sheets, as of end-1994, bonds accounted for a relatively small share of the total liabilities of nonfinancial firms in France (5.7 percent) and in Germany (less than one percent); by contrast, they accounted for 18.8 percent of the total liabilities of U.S. nonfinancial firms.[1] The low share of debt financing by European companies extends to the short end of the maturity spectrum as well, because European companies tend to rely on bank financing for short-term funds. U.S. corporate entities tend to rely more heavily on short-term financing because of their access to the very liquid and highly developed commercial paper market, which accounts for more than half of the world's outstanding commercial paper. These observations about the use of debt securities underscore the greater historical reliance by firms in the United States on direct intermediation through the corporate debt securities markets, and the heavy reliance in Europe on bank financing, and the relatively undeveloped European corporate securities markets (with the exception of U.K. markets).

Another way of assessing the potential importance of the euro from a purely quantitative perspective is to examine the use of existing European currencies as currencies of denomination in *international financial transactions*. In international bond markets, 35 percent of the outstanding stock of international debt securities were denominated in EU currencies at end-September 1996 (Table 2). Although this is a substantial share of

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[1]OECD and Deutsche Bundesbank.

Table 2. Amounts Outstanding of International Debt Securities by Currency and Country of Nationality, September 1996 1/

(In billions of U.S. dollars)

	Amounts Outstanding
By currency	
U.S. dollar	1,139.0
Japanese yen	520.8
Currencies of European Union (EU) countries 2/	1,056.3
Other 3/	346.1
Total	3,062.1
By country of nationality	
EU countries	1,406.1
Austria	66.2
Belgium	44.8
Denmark	33.2
Finland	54.6
France	217.2
Germany	322.8
Greece	21.0
Ireland	16.6
Italy	94.6
Luxembourg	9.7
Netherlands	116.4
Portugal	12.9
Spain	38.4
Sweden	119.3
United Kingdom	238.4
North America	571.2
Canada	178.1
Mexico	44.0
United States	349.1
Japan	360.4
Others	724.4
All countries	3,062.1

Source: Bank for International Settlements, International Banking and Financial Market Developments (Basle: Bank for International Settlements, November 1996).

1/ Euronotes and international bonds.

2/ Currencies of Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom; plus ECU.

3/ Currencies of Australia, Canada, Hong Kong, New Zealand, Norway, and Switzerland; plus other currencies.

international issues outstanding, and is a close second to the amount of *dollar* international issues outstanding, EU countries themselves issued more than 45 percent of all international bonds outstanding. In addition, in the five year period ending in December 1995, only a minor share of developing country debt was issued internationally in EU currencies.

Still another way to gauge the potential role of the euro is to examine daily turnover in the global *foreign exchange markets*. According to the most recent Bank for International Settlements (BIS) survey, as of April 1995 the dollar was involved in at least one side of a transaction about 42 percent of the time, the deutsche mark 18.5 percent, the yen 12 percent, and the pound sterling 5 percent. EMS currencies combined were involved in at least one side of a transaction about 35 percent of the time, including European cross-currency trading (Table 3). In related derivative markets, the dollar, EU currencies, and the yen, accounted for shares of trading that are roughly equivalent to the relative sizes of their economies (in terms of GDP), but most of this activity actually involved U.S. and U.K. financial institutions. Transactions involving currency swaps were clearly tilted toward the dollar, reflecting its now dominant position in international finance and as a reserve currency (Table 4).

In summary, although the EU currencies command a significant share of activity in international financial markets, they do not now command shares in line with either the size of the EU economy or the relative size of their domestic financial markets.

III. Structural Implications for European and International Capital Markets

A. Incentives for Further Market Integration and Development

Driven by financial deregulation, changing opportunities for investment, and bank disintermediation, European securities markets have become more highly integrated and liquid. These changes have been associated with the placement of large sovereign debt issues, which provided strong incentives to develop liquid and efficient secondary bond markets, and the accumulation of large stocks of public debt, which raised yields on government securities thereby making them an attractive alternative to bank deposits. Facilitated by the recent convergence of macroeconomic policies, greater capital mobility has contributed to market integration by linking national securities markets, reducing bond spreads, and increasing co-movements in bond and equity returns across EU countries.[2]

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[2]See Michael Artis and Mark Taylor, Sylvester Eijffinger and Jan Lemmen, and Jeffrey Frankel, Steve Phillips, and Menzie Chinn.

Table 3. Use of Selected Currencies on One Side of the Transaction, April 1989, April 1992, and April 1995 1/

(As percentage of global gross foreign exchange market turnover)

Currency	April 1989	April 1992	April 1995
U. S. dollar	90	82	83
Deutsche mark 2/	27	40	37
Japanese yen	27	23	24
Pound sterling	15	14	10
French franc	2	4	8
Swiss franc	10	9	7
Canadian dollar	1	3	3
Australian dollar	2	2	3
Europen Currency Unit (ECU)	1	3	2
Other European Monetary System (EMS) currencies	3	9	13
Currencies of other reporting countries	3	3	2
Other currencies	19	8	8
All currencies	200	200	200
Memorandum item:			
EMS currencies including ECU	48	70	70

Source: Bank for International Settlements, Central Bank Survey of Foreign Exchange and Derivatives Market Activity 1995 (Basle: Bank for International Settlements, May 1996).

1/ Number of reporting countries are 21 in 1989 and 26 in 1992 and 1995. Data for 1989 and data for Finland in 1992 include options and futures. Data for 1989 cover local currency trading only, except for the U.S. dollar, deutsche mark, Japanese yen, pound sterling, Swiss franc, and ECU. The figures relate to gross turnover because comparable data on a "net-gross" or "net-net" basis are not available for 1989.

2/ Data for April 1989 exclude domestic trading involving the deutsche mark in Germany.

Table 4. Notional Principal Value of Outstanding and New Interest Rate and Currency Swaps, 1995

(In billions of U.S. dollars)

	Amounts Outstanding	New Swaps
Interest rate swaps	12,810.7	8,698.8
U.S. dollar	4,371.7	2,856.5
Japanese yen	2,895.9	2,259.3
Currencies of European Union (EU) countries 1/	4,620.9	3,160.9
Of which:		
Deutsche mark	1,438.9	984.5
French franc	1,219.9	1,113.5
Italian lira	405.4	217.3
Netherlands guilder	101.8	62.3
Pound sterling	854.0	433.4
Spanish peseta	163.7	91.9
ECU	223.1	96.4
Other	922.4	422.1
Of which:		
Swiss franc	331.7	159.2
Currency swaps 2/	2,394.8	910.2
U.S. dollar	837.8	307.9
Japanese yen	400.0	164.5
Currencies of EU countries 1/	684.7	248.1
Of which:		
Deutsche mark	238.0	78.1
French franc	81.4	41.6
Italian lira	72.6	18.5
Netherlands guilder	28.1	13.0
Pound sterling	91.5	23.4
Spanish peseta	27.5	22.4
ECU	83.0	28.2
Other	472.3	189.8
Of which:		
Swiss franc	150.6	29.7

Source: Bank for International Settlements, International Banking and Financial Market Developments (Basle: Bank for International Settlements, November 1996).

1/ Includes the currencies of Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden, and the United Kingdom; plus ECU.

2/ Not adjusted for reporting on both sides.

Against the background of these ongoing structural changes, the introduction of the euro will alter incentives in such a way so as to encourage the further *securitization* [3] of European finance, greater uniformity in market practices, more transparency of pricing, and increased market integration.[4] *First*, by eliminating currencies, the introduction of the euro reduces the direct cost of spot transactions and eliminates a relatively volatile element of market risk—foreign exchange risk—in longer dated real and financial contracts between entities in EMU member countries. While foreign exchange risk between some ERM currencies may have diminished recently (as measured by implied volatilities, for example), the costs incurred by market participants—including central banks—during the violent disruptions in the ERM crisis in 1992-93 will long be remembered as will the frequent realignments, often preceded by speculative attacks, in the early years of the EMS and in the less formal exchange rate arrangements before the EMS.

Second, the elimination of currency risk increases the relative importance of other elements of risk, including credit, liquidity, settlement, legal, and event risks. Credit risk is likely to be the most important component of securities pricing within EMU, with the implication that the "relative value" of underlying credits will drive securities prices rather than judgements about the stability and volatility of currency values.

Increased attention will be paid to other elements of risk. Bond issues of two otherwise identical credit risks—say a German and a French company producing the same goods and having similar balance sheets—may be priced differently if issuing techniques, clearing and settlement procedures, and legal procedures are different in the respective countries. The impact of these remaining and less volatile components of risk on the cost of raising funds will provide incentives to suppliers of securities to narrow further their interest rate spreads by increasing transparency and by improving issuing techniques and financial infrastructures in order to attract investors. This competitive process, if allowed to run its course, could lead to the harmonization of market practices within the euro zone far enough to eliminate the existing advantages a particular geographical market may now have. In this way, the elimination of currency risk could lead to greater uniformity and transparency of

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[3] What is meant by *securitization* is the creation of any credit, ownership, or derivative claims that are publicly tradable, either in organized exchanges or over-the-counter, and whose prices are determined at frequent intervals in an open market. The popular press has used this term, almost exclusively, to describe *asset-backed securities* (the creation of high-quality negotiable, liquid securities that funded by setting aside illiquid claims, such as mortgage obligations, consumer receivables, and other classes of assets).

[4]Even without the euro, full implementation of the EU Investment Services Directive (ISD), which creates a single passport for securities firms (brokers and dealers), portfolio managers, and investment advisories, would provide renewed stimulus for the creation of an EU single market in financial services. The euro is likely to enhance the impact of the ISD.

market practices, with the benefits of more uniform pricing and a breakdown of market segments within Europe.

The elimination of currency risk, the convergence of credit spreads, and more uniformity in market practices together can be expected to increase the depth and liquidity of European securities markets. In short-term markets (money, swap, and short-term Treasury bill markets, for example), contracts denominated in individual currencies will be denominated in euro and could be traded across national markets, even if small credit spreads remain. For securities with multiple exchange listings, competition among exchanges could lead to a consolidation of trading in a single location. Even in markets that remain somewhat segmented (because of higher credit spreads or restrictions), lower transaction costs (elimination of commissions on foreign exchange transactions and costs of hedging exchange rate risk) and the elimination of trading restrictions (for example on institutional investors) will add liquidity. Moreover, competition among issuers—no longer based on the strength of the currency—will encourage sovereigns to introduce market reforms.

Third, the euro will reduce directly the number of existing barriers to cross-border investment and eliminate some restrictions on currency exposures of various pools of capital (pension funds, insurance companies, other asset managers). To begin with, all intra-EMU foreign exchange restrictions on the investments of pension funds will become irrelevant within the EMU area. The EU matching rule (liabilities in a foreign currency must be 80 percent matched by assets in that same currency) for insurance companies—which has been extended to pension funds in some countries—will also no longer be binding within EMU, as insurance companies will be able to invest their assets in any country of the euro area, as long as their liabilities are denominated in euros. The size and country diversification of assets managed by institutional investors in the EU, say mutual funds—still far smaller than in the United States—could rapidly increase together with their share of foreign investments (Table 5). Finally, the "anchoring" principle, restricting lead managers of issues to full subsidiaries domiciled in the issuing country, will become irrelevant and will thereby increase the potential for intra-EMU market penetration.

Fourth, the possibilities for portfolio diversification will change. The advantages of currency diversification will be lost to the extent that business cycles have been asynchronous and shocks asymmetric. This will encourage investors and financial institutions to search for, and find, new opportunities for portfolio diversification within EMU repo, government securities, and corporate securities markets, but it may also encourage them to seek diversification outside the euro area as well.

European securities markets will also be shaped by other important factors. Technological progress will soon make fully integrated EU-wide securities and derivative markets unavoidable, by making the location of trading, clearing, and settlement largely irrelevant. Continued fiscal consolidation and privatization—as part of the Stability and Growth Pact—is likely to reduce the volume of new government bond issues, providing room for private entities to issue new equity shares and debt securities. Finally, as the role of the

Table 5. Mutual Funds, June 1996

	Equity	Bond	Money Market	Total
Net assets (in billions of U.S. dollars)				
European Union 1/ 2/	366.74	533.94	496.32	1,396.99
United States	1,532.46	741.78	817.75	3,091.99
Japan	119.12	189.39	102.22	410.73
Number of funds (in numbers) 3/				
European Union 1/ 2/	7,136	4,436	1,912	13,484
United States	2,611	2,390	995	5,996
Japan	4,118	2,060	15	6,193

Source: Investment Company Institute.

1/ Does not include Ireland and the Netherlands for the equity and bond funds.
2/ Does not include Austria, Denmark, Ireland, and the Netherlands for the money market funds.
3/ The equity funds also include balanced funds and "other" funds.

unfunded social security system diminishes, the role of institutional investors, like insurance companies and private pension funds, will increase the demand for public and private paper of various maturities and types, perhaps including corporate bonds.

Overall, the introduction of the euro could become an important catalyst in the development of securities markets because it may enhance the impact of EU financial directives, increase transparency in credit evaluation, accelerate the processes of financial market integration, and further expand Europe's institutional investor base.

B. EMU-Wide Repo and Interbank Markets

Monetary policy operating procedures and securitization

Whether or not these incentives lead to the development of deep and liquid short-term securities markets will depend, in part, on demand and supply factors and the extent of cross-border competition between financial intermediaries, both within and outside EMU. Also important are the financial policy choices by EMU member countries, as there are remaining legislative, regulatory, and tax impediments to cross-border investment and, therefore, to the development of EMU-wide markets. Potentially greater in importance are the institutional arrangements for the implementation of monetary policy, and more generally financial policy.

Historically, the nature and development of private money markets has had an important bearing on the development of domestic securities markets.[5] In the highly liquid and securitized markets in the United States, for example, the central bank traditionally has played an active role in the markets by intervening daily. The objectives of this active participation are to smooth out fluctuations in liquidity during the day and to provide stability to the pattern of interest rates on overnight funds. Financial institutions have come to expect this active participation, and the structure of financial activities and balance sheets reflects this mode of central bank operations. This active participation has fostered the development of efficient money and securities markets in the United States.[6]

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[5]See David Folkerts-Landau and Peter Garber.

[6]There are other reasons for this active participation, including the mandate to ensure the smooth functioning and stability of financial markets. The functions of the U.S. Federal Reserve System were expressed by Chairman Volcker in 1983: "A basic continuing responsibility of any central bank--and the principal reason for the founding of the Federal Reserve—is to assure stable and smoothly functioning financial and payments systems. These are prerequisites for, and complementary to, the central bank's responsibility for conducting monetary policy as it is more narrowly conceived. To these ends, the Congress has over the last 70 years authorized the Federal Reserve (a) to be a major participant in the nation's payments mechanism, (b) to lend at the discount window as the ultimate source of liquidity for

(continued...)

The European models for conducting monetary and financial policies, and in particular the German model, rely extensively on minimum reserve requirements, reserve averaging, and infrequent (bi-weekly) market interventions to smooth liquidity in the banking system and to provide stability to the pattern of interest rates. The reliance on reserve requirements, the preference for infrequent market interventions, and the "narrow" concept[7] of central banking adopted by some European central banks has tended to discourage the development of private securities markets and to foster the predominance of bank-intermediated finance.

At this point in the process of establishing the institutional structure of the European System of Central Banks (ESCB), it is uncertain which paradigm will prevail over the next few years. According to Article 105 (1) of the Maastricht Treaty, "the primary objective of the ESCB shall be to maintain price stability," and the Treaty does not explicitly envisage an active role for the ECB in ensuring the smooth functioning of the financial system.[8] Although final decisions have not been made, the current plan for monetary policy operating procedures is to rely on a system of minimum reserve requirements, with reserve averaging, and to have infrequent (bi-weekly) and decentralized repo operations, and decentralized fine-tuning operations. The national central banks (NCBs) will collect repo bids from local markets, send them to a central computer in Frankfurt, and allocate the repo transactions according to instructions from the ECB once all the bids are collected and the market price determined.[9] Although the ECB has the authority to intervene more frequently and to issue its own paper, it remains to be seen how it will adapt to market pressure that will require more frequent interventions.

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[6](...continued)
the economy, and (c) to regulate and supervise key sectors of the financial markets, both domestic and international. These functions are in addition to, and largely predate, the more purely "monetary" functions of engaging in open market and foreign exchange operations and setting reserve requirements; historically, in fact, the "monetary" functions were largely grafted on to the "supervisory" functions, not the reverse." See Board of Governors.

[7]"Narrow" in the sense that price stability is the overriding objective, and that banking supervision, financial market surveillance, and management of systemic risks in the payments system are secondary, or are not, functions of central banking. See David Folkerts-Landau and Peter Garber.

[8]The Treaty empowers the ESCB to promote the smooth operation of payment systems, but the treaty only empowers the ECB to "*contribute* to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system"(author's italics).

[9]See, European Monetary Institute (1997).

Two related policy uncertainties—involving the Target payments system and supervisory and lender-of-last-resort functions—will be discussed in subsection F following the discussion of the potential impact of the euro on European repo, money, bond, equity, and derivative markets, to which the paper now turns.

Repurchase agreements and money markets

The decision that the ECB will use repurchase agreements as the main instrument for implementing monetary policy could prove to be a strong, and decisive, incentive for the development of an EMU-wide market for repurchase agreements (repo market). Although private repo markets currently exist in some countries, except for a few exceptions they are not highly developed and lack the liquidity and depth of the repo markets in the United States.

In the United States, repo markets are an important alternative money market instrument. By providing ready access to *secured* borrowing, and by enhancing liquidity in the securities markets, repos facilitate portfolio financing and the ability to short the market. Banks also can use repurchase agreements for extending credits to securities dealers collateralized by a zero-risk-weighted central government bond. In Europe, only France has a transparent and liquid repo market, with 20 primary dealers being required to post prices on Reuters. The United Kingdom recently introduced a gilt repo market, while other countries, notably Germany, have discouraged them by subjecting repo transactions with nonbanks to reserve requirements, with the result that a large share of the German repo business migrated to London. In Italy, legal, taxation, and settlement obstacles have prevented the development of a liquid repo market.

An open question is whether the different market structures characterizing the interbank markets in each member country will survive or whether market pressures—acting through price differentials—will lead to a single EMU-wide interbank market. Integration has already increased somewhat, with growing shares of foreign interbank deposits and smaller discrepancies between interest rates on euro and domestic markets (Table 6). On short maturity transactions, especially shorter than one month, interest-rate arbitrage is still imperfect, in part because of differences in taxation and regulation. With the euro, the elimination of European cross-currency risk, the establishment of ECB repo operations, and the provision of intraday liquidity for settlement purposes, there would be few, if any, impediments preventing first-, second-, and third-tier European banks from dealing directly with each other for supplying or accessing overnight funds. This overnight borrowing and lending could quickly lead to the creation of an efficient EMU-wide interbank market with total volumes at least equal to the sum of those of current domestic interbank markets. In this scenario, domestic interbank rates would be harmonized across EMU with residual differences reflecting only different credit standings of second or third tier banks.

It is a possible next step, although by no means certain, for a private repo market to develop in all EMU countries, in which a private yield curve will offer instruments ranging in maturity from overnight to long-term contracts. In such a market, financial and nonfinancial

Table 6. European Union: Cross-Border Interbank Assets, 1992-96

(In percent of GDP)

	1992	1993	1994	1995	1996
European Union countries					
Austria	17.71	16.72	17.77	17.89	21.16
Belgium	56.01	60.33	59.20	58.29	58.03
France	17.81	18.22	20.12	18.80	18.51
Germany	8.60	10.21	12.64	13.08	12.67
Ireland	26.26	35.66	38.82	50.80	55.90
Italy	15.81	17.74	18.22	16.71	16.25
Luxembourg	914.54	921.38	937.81	908.43	840.15
Netherlands	26.45	26.54	27.39	27.04	31.24
Portugal	7.63	13.50	20.36	22.17	20.75
Spain	7.38	9.14	10.85	9.61	10.24
United Kingdom	58.14	74.71	74.59	81.59	79.99
Memorandum items:					
North America					
Canada	8.27	9.27	10.10	9.92	10.41
Mexico	6.07	5.07	6.57	7.88	6.18
United States	9.36	8.96	9.49	9.65	8.89
Japan	16.97	13.85	13.49	12.78	12.67

Sources: Bank for International Settlements; and International Monetary Fund, World Economic Outlook.

entities alike can engage in short-term collateralized refinancing operations for conducting day-to-day treasury operations in supporting their real economic activities. Many European multinationals now conduct such refinancing in New York, London, Tokyo, and other international financial centers.

With the development of an EMU repo market, collateralized borrowing and lending will enable financial institutions to refinance their operations at interest rates below those in the interbank market. The development of this European-wide market could help set the tone for the development of other capital markets in Europe. It would also open up opportunities for large global financial institutions to participate more fully and actively in short-term EMU markets for liquidity management, in much the same way they participate in the markets in New York and London. The benefits for European capital markets from the participation of these large global players would be significant in terms of adding depth, liquidity, and efficiency to European capital markets.

Possible remaining impediments to the establishment of EMU-wide repo markets would be reserve requirements on repo operations—remunerated at below market interest—other longstanding legal and settlement obstacles, and elements of tax systems. In addition, interest rates in the repo market might not become fully uniform across Europe if different margins ("haircuts") are applied to Tier 1 and Tier 2 collateral for repurchase transactions with the ECB. Alternatively, if the ECB does not discriminate between the quality of collateral, the distinction between issuers at the short-end of the curve may become blurred and lead to a "race to the bottom" in quality in providing collateral.

C. EMU Bond Markets: New Focus on Credit Risk

Government bond market

By eliminating currency risk on European cross-country transactions, and by directly reducing transactions costs, the introduction of the euro reduces the cost of issuing and investing in government securities. The increased transparency of costs and benefits is likely to influence both demand and supply and to provide strong incentives for the harmonization of market practices—auctioning techniques, issue calendars, maturity spectrum—toward the most transparent and cost-effective practices for both issuers and investors. As investors and issuers become familiar with these transactions, it is reasonable to expect market segmentation to diminish, as investors search throughout EMU sovereign markets for their preferred risk-return profiles among the sovereign issuers in the union. For this reason, EMU member governments can no longer take for granted their "home-currency" market, and will try to appeal to a broader investor base. Whether or not this harmonization of market practices and market desegmentation occurs in full, market participants who in the past focused on the relatively volatile currency risk will now focus attention on the other less volatile risks, including credit (sovereign), liquidity, settlement, legal, and event risks.

The refocus on credit risk by both issuers and investors is likely to increase cross-border competition between financial intermediaries for bringing new issues to market, for "rating" new credits, and for allocating investment funds across the national markets. Competition is likely to involve non-European as well as European financial institutions and asset managers. Financial intermediaries from the United States—where both investment houses and institutional investors have respectively specialized on the issuer and investor sides of these markets for decades—would appear to have a comparative and competitive advantage in supplying many of these services against all but the largest European financial intermediaries. Thus, the establishment of EMU is likely to contribute to the restructuring of the global business of investment banking and universal banking.

How far market desegmentation will go, and how liquid the European sovereign debt market becomes will depend on how credit risks are priced. Several potential EMU member countries enjoy top ratings on debt denominated in domestic currencies and lower ratings on debt denominated in foreign currency (Table 7). There are several reasons for these differences. First, foreign currency debt cannot be repaid by printing domestic money and it has, therefore, higher default probabilities associated with it. Second, debt issued in domestic currency is mostly locally held so that governments, for political reasons, are more likely to continue to service domestic debt. Third, governments may find it easier to raise taxes or cut expenditures to repay domestic debt than to repay foreign investors. If these considerations are valid for euro-denominated debt issued by future EMU members, then interest rate spreads, and in particular credit spreads, could change to be more in line with those currently observed on the foreign currency denominated debt of these countries. This could amount to a downgrading of asset quality for those countries.[10] In this scenario the share of foreign currency debt would increase from current levels to 100 percent (Table 8). Spreads could increase above those observed on the relatively small stocks of foreign currency debt presently outstanding.[11] Counteracting some of this pressure for spreads to rise would be the improved fiscal positions of several countries to meet the Maastricht criteria and the stability pact.

There are other factors that would influence credit spreads. Although the "no-bailout" clause in the Maastricht Treaty rules out the possibility of direct EU assistance to individual EMU member countries, it is unlikely that market participants will price sovereign debt as if it were corporate debt.[12] The mere size of public debt outstanding in any potential EMU

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[10]S&P has already indicated that it will initially award each country's euro-denominated debt the rating currently applied to foreign currency denominated debt and that European companies will be able to obtain ratings higher than those of their own governments; Moody's will adopt a case-by-case approach.

[11]See Francesco Drudi and Alessandro Prati.

[12]The "no-bailout" clause—Article 104b of the Maastricht Treaty—states, "the Community shall not be liable for or assume the commitments of central Governments, regional, local, or other public authorities, other bodies governed by public law, or public undertakings of any member state, without prejudice to mutual financial guarantees for the joint execution of a specific project." The same provision applies to individual member states.

Table 7. Ratings of Foreign and Local Currency Debt of Sovereign Governments, April 21, 1997

	Foreign Currency						Local Currency		
	IBCA		S & P		Moody's		IBCA	S&P	Moody's
	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Long-term	Long-term
European Union countries									
Austria	AAA	A1+	AAA	A-1+	Aaa	P-1	AAA	AAA	—
Belgium	AA+	A1+	AA+	A-1+	Aa1	P-1	AAA	AAA	—
Denmark	AA+	A1+	AA+	A-1+	Aa1	P-1	AAA	AAA	Aa1
Finland	AA	A1+	AA	A-1+	Aa1	P-1	AAA	AAA	Aaa
France	AAA	A1+	AAA	A-1+	Aaa	P-1	AAA	AAA	Aaa
Germany	AAA	A1+	AAA	A-1+	Aaa	P-1	AAA	AAA	Aaa
Greece	BBB-	A3	BBB-	A-3	Baa1	P-2	—	A-	—
Ireland	AA+	A1+	AA	A-1+	Aa1	P-1	AAA	AAA	Aaa
Italy	AA-	A1+	AA	A-1+	Aa3	P-1	AAA	AAA	Aa3
Luxembourg	AAA	A1+	AAA	A-1+	Aaa	P-1	AAA	AAA	—
Netherlands	AAA	A1+	AAA	A-1+	Aaa	P-1	AAA	AAA	Aaa
Portugal	AA-	A1+	AA-	A-1+	Aa3	P-1	AAA	AAA	Aa2
Spain	AA	A1+	AA	A-1+	Aa2	P-1	AAA	AAA	Aa2
Sweden	AA-	A1+	AA+	A-1+	Aa3	P-1	AAA	AAA	—
United Kingdom	AAA	A1+	AAA	A-1+	Aaa	P-1	AAA	AAA	Aaa
Memorandum items:									
North America									
Canada	AA	A1+	AA+	A-1+	Aa2	P-1	AAA	AAA	Aa1
Mexico	BB	B	BB	A-2	Ba2	NP	—	BBB+	—
United States	AAA	A1+	AAA	A-1+	Aaa	P-1	AAA	AAA	Aaa
Japan	AAA	A1+	AAA	A-1+	Aaa	P-1	AAA	AAA	Aaa

Sources: Bloomberg Financial markets; The IBCA Ltd.; Moody's Investors Service; and Standard and Poor's.

Table 8. European Union Countries, North America, and Japan:
Foreign Currency Debt, 1996

(In percent of total government debt)

Country	Foreign Currency Debt	Year 1/
European Union countries		
Austria	21.70	1995
Belgium	11.40	1995
Denmark	15.10	1995
Finland	54.80	1995
France	1.79	1995
Germany	0.01	1995
Greece	39.20	1995 2/
Ireland	35.00	1995
Italy	12.90	1996
Luxembourg	3.50	1995
Netherlands	0	1996
Portugal	18.00	1996 3/
Spain	7.30	1996
Sweden	28.60	1996 4/
United Kingdom	5.30	1995
North America		
Canada	4.00	1996 5/
Mexico	89.00	1996
United States	0	1996
Japan	0	1996

Source: Country desks.

1/ The years for which the latest data are available.
2/ Preliminary data.
3/ Data as of October 1996.
4/ Data as of September 30, 1996.
5/ Data as of March 31, 1996.

member country relative to any single corporate issuer would imply significant systemic implications of an involuntary restructuring or an outright default by an EMU member country. This would increase the pressure to find alternative solutions. One possible mechanism for dealing with fiscal problems when they arise is to provide EU financial assistance conditional on implementation of a macroeconomic stabilization plan. In addition, strict enforcement of the stability pact would reduce the "free-rider" problem of governments running fiscally irresponsible policies from time to time.

Pricing credit risk

From a pricing perspective, credit risk will become the most important risk and will make up the largest part of the remaining interest rate spreads among EMU issuers after the introduction of the euro. Unfortunately, there is no unambiguous guide to the likely levels or dispersion of sovereign credit spreads in EMU. One way of estimating credit spreads is to compare interest rates on sovereign debt issues that trade in a common currency. Among the potential EMU member countries that have issued dollar denominated debt, as of end-1996, spreads between ten-year dollar issues trading in domestic markets and comparable U.S. Treasury issues ranged from a low of 24 basis points for Austria to a high of 34 basis points for Italy (Table 9)[13] Spreads on five-year issues ranged between a low of 10 basis points for Austria and a high of 22 basis points for Italy. Although it is difficult to assess whether these spreads are "high" or "low," it would appear that they are probably reflecting a good deal of market optimism about the prospects for a successful EMU and over the adjustments made in some countries.

Another rough benchmark on credit spreads is the pricing of debt issued by the separate legal entities making up the separate states of the United States of America and of the provinces of Canada. In the case of the United States, a sample of municipal bond traders collected over the period 1973-1990 indicates that the largest spread during the 28 year period was 146 basis points, and the mean of the spread was 32.4 basis points with a standard deviation of 24.8 basis points.[14] The sample also reveals that in December 1989, the last date of the sample, the maximum difference in spreads on 20 year general obligations issues of 41 U.S. states was 84 basis points. Regarding the Canadian provinces, a much more limited sample suggests that spreads over Canadian federal issues of ranged from 35 basis points for Saskatchewan to 78 basis points for Quebec (Table 10).[15]

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[13]One problem with using this method for estimating credit spreads is that the spreads may also reflect the markets assessment of other factors including, liquidity, tax differences, name recognition, and investor preferences.

[14]See the analysis in Tamim Bayoumi, Morris Goldstein, and Geoffrey Woglom.

[15]See Salomon Brothers (December 1996).

Table 9. Estimates of Credit Spreads for
European Union Sovereigns, September 11, 1996

(In basis points)

	2 Year	5 Year	10 Year
Austrian schilling	+1	+10	+24
Belgian franc	+3	+15	+28
Danish krone	+3	+13	+27
Finnish markka	+4	+16	+30
Irish pound	+3	+11	+25
Italian lira	+8	+22	+34
Spanish peseta	+6	+19	+32
Swedish krona	+6	+17	+27

Source: Paribas Capital Markets, EMU Countdown (September 9, 1996), Table 5.

Table 10. Interest Rate Spreads of Canadian Provinces

Province	Rating	Coupon (Percent)	Maturity	Indicative Bid-Side Spreads (In basis points) Dec.30, 1996	Jan. 28, 1997	Change
U.S. dollar issues						
Ontario	Aa3/AA-	6.000	Feb. 21, 2006	38	38	0
Quebec	A2/A+	6.500	Jan. 17, 2006	58	56	-2
Quebec	A2/A+	7.500	July 15, 2023	83	78	-5
Saskatchewan	A3/A-	6.625	July 15, 2003	37	35	-2
Saskatchewan	A3/A-	8.500	July 15, 2022	59	58	-1
				July 29, 1996		
Canadian dollar issues						
British Columbia	AA+/Aa1		5 year	6		
Newfoundland	Baa1		5 year	27		
Alberta	Aa2/AA		10 year	7		
Nova Scotia	A		10 year	28		

Sources: Goldman Sachs, Fixed Income Research: Corporate Bond Monthly (February 1977), p.47; and SBC Warburg, EMU: Opportunity or Threat (December 1996), p.62.

Yet a third indication would be the pricing of European corporate debt. If EMU member countries maintain their sovereign ratings of triple-A, it is reasonable to expect that credit spreads between EMU member country issuers would be in the range of Standard and Poor's Triple-A rated corporate issuers. As of a few weeks ago, spreads for five triple-A rated corporate issues were in the range of between 10 and 45 basis points above their respective domestic benchmarks.[16]

Overall, it should be expected that there would be a convergence of interest rates on sovereign debt issued—and outstanding—by EMU member countries. Whether or not all of these issues trade at identical spreads will be determined by the market. To the extent that spreads remain, market segments will be identifiable. How much of an impact this will have on market liquidity remains to be seen.

Possibilities for desegmentation: yield-curve benchmarks and currency redenomination

The plan to introduce the euro has reopened the competition among European sovereign issuers for providing EMU with the *benchmark yield curve* for pricing other sovereign issues and private debt issues. This renewed competition is likely to increase the potential for further desegmentation of national debt markets. From an investor's point of view, the benchmark issue offers the highest return possible on what is deemed to be a "safe" investment. Such issues are usually high in volume, extremely liquid, and associated with various hedging instruments, with the added advantage of low bid-ask spreads. Benchmark issues also are used widely in repo markets, and are typically usable as collateral for a wide range of other financial contracts. From the issuers point of view, the key advantage is that the yield is the lowest possible for that particular market segment; the added liquidity also provides easy access to a wide investor base for issuance. Thus, the importance of benchmark status is that it provides access to the lowest cost financing in a liquid market.

The main candidates for benchmark status are German and French instruments, and it would appear that France possesses several technical advantages (Figure 1).[17] First, the

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[16]This range is from a sample of five Standard and Poor's Triple-A rated corporate issues with maturities in the eight to ten year range: Bayerische Vereinsbank in Germany (14 basis points), Rabobank in the Netherlands (19 basis points), British Telecom in the United Kingdom (42 basis points), Credit Local in France (45 basis points), Unilever in the Netherlands (11 basis points).

[17]Another possibility is that the euro benchmark yield curve will be based on swap yields. Swap markets in EMU could become extremely liquid as all interest rate swap contracts, which are currently segmented by currency, will become perfectly fungible and will be unaffected by the credit standing of governments. If the ECB issues short-term paper, ECB "debt certificates," it is likely to become a benchmark for very short-dated paper.

Figure 1. The Euro Benchmark–Yield Curve: Germany vs. France

Germany		France	
1. Instruments			
BUBILLs	Six-month maturity only; issue size is up to ECU 3.2 billion	BTFs	Maturities (every Thursday) up to one year; issue size averages ECU 2.8 billion
SCHATZ	Two-year maturity; first issue was ECU 5.2 billion	BTANs	Usually two- and five-year maturities; average size is ECU 8-11 billion
OBLs	Five-year maturity; issue size ECU 4.2-6.8 billion	OATs	Maturity of up to 30 years; average size issue is ECU 15.5-17 billion
Bunds	Ten and 30-year maturity; issue size ECU 5.2-13 billion	TEC10	Floating rate OAT
Treasury Notes	Issuing ceased in mid-1995	Treasury Bonds	No longer issued
Treuhand Notes	Issued in 1993 and 1994 only; maturity was five years	Strips	Available every six months; available from zero to thirty years
2. Issuing Procedure			
The Federal Bond Consortium operates under the lead management of the Bundesbank. It has the characteristics of an underwriting and placing syndicate. Since 1992, membership is open to foreign firms' legally dependent branches in Germany. At end 1995, there were 95 institutions in the consortium, including 48 foreign-owned banks.		Primary dealer system which numbers 20 members (7 foreigners). These are required to: stimulate the secondary market; inform the Trésor about market developments; and take active part in tenders. Any financial institution may apply and receive primary dealer status after a brief period of observation as a reporting dealer. The advantages of becoming a primary dealer are: (i) access to tenders; (ii) non-competitive bids, enabling the purchase of more securities at the marginal price at the tender; (iii) the authorization to strip and reconstitute OATs; and (iv) the ability to market their trading status to clients.	

Figure 1. The Euro Benchmark–Yield Curve: Germany vs. France

Since August 1990 the majority of Federal bonds are issued by a combined method: one part via the syndicate and another by tender. In the case of Bunds and OBLs a portion of the issue amount is set aside for market management operations by the Bundesbank and are subsequently sold in stages through the stock exchange. An auction schedule is published roughly two weeks before the beginning of each quarter. The two-year and five-year bonds are now issued on a regular quarterly schedule. However, the issuing calendar 10-year and more so 30-year paper remains the focus for speculation. In addition, while issue size has been increased, liquidity across the yield curve varies considerably.	The Trésor states its issuing plans in BTANs and OATs at the beginning of the year. Almost all national negotiable debt is issued through tenders, Dutch style. The issuing agenda is very regular: BTFs on Monday, monthly OAT tenders, on the first Thursday of each month and usually include a 10-year; monthly BTAN tenders, usually on the 2-year and 5-year benchmarks. Issue amounts are set two days before the lender after consultation with the primary dealers.
3. The STRIPs Market	
On June 13, 1996, the Bundesbank announced plans to introduce the separation and separate trading of principal and interest for particular 10- and 30-year Federal bonds during the course of 1997.	Since 1991, all OATs maturing on April 25 and October 25 (being 13 bonds in total) can be stripped. There is a principal certificate type for each strippable bond, but all coupon certificates with the same maturity are fungible, making it possible to rebuild OATs with coupons from another line. The amount that has been effectively stripped, comprises 17 percent of the strippable bond total and 4.75 percent of the total French franc debt (whereas U.S. strips are 25 percent and 4.35 percent respectively).
4. Repurchase Market	
The deutsche mark repo market is hindered by three key factors: (i) reserve requirements; (ii) the absence of a government approved universal repo agreement; and (iii) the fact that many domestic institutions do not make their bond holdings available for lending. This has made the bulk of DM repo trading being located offshore, mainly in London.	The French franc repo market is by far the most sophisticated in Europe, whose development has followed the model of the U.S. The Trésor initiated a legally binding repo-agreement that forms the basis of the markets functioning. The market is very transparent and liquid, with 20 primary dealers being required to post prices on Reuters from which any institution can trade.

Source: Paribas.

French sovereign market is widely seen to be very liquid because relatively larger issues are more evenly distributed across the maturity spectrum to generate a smooth yield curve. Second, French markets are supported by a transparent and liquid market for repurchase agreements; the bulk of DM repo trading is located offshore, mainly in London, mostly as a result of reserve requirements. These requirements are likely to be lifted and so this French advantage will be eliminated soon. Third, France has already developed a strip market—which can be used to recalculate the exact value of each security on issue. Fourth, the French auction schedule has been for some time very regular and predictable with the Treasury announcing its plans at the beginning of the year. Finally, the French government has already announced its intentions to redenominate in euros the outstanding stock of debt on January 1, 1999. Although French paper is well placed to provide the benchmark yield curve for euro markets, all these advantages could be matched by other markets if measures are taken by other countries, and in particular by Germany, before the euro is introduced. If this process of competition continues, existing segments will be reduced and market size, liquidity, and efficiency will most likely increase.

The "critical mass" approach requires that starting in 1999, all new issues of government bonds and bills (at least those traded on the secondary market and expiring after the end of phase B) will have to be denominated in euros.[18] Countries have the option to redenominate their outstanding stock of debt in euro as of January 1, 1999. The coexistence of new euro-denominated bonds and old national-currency bonds issued by the same government could segment the newly created euro market for government securities and reduce its relative liquidity. In addition to France, Belgium has also announced its intention to redenominate debt on January 1, 1999. Germany is in the process of deciding, in part because the existence of a deep and liquid secondary market for German sovereign issues could be the decisive factor in providing the euro benchmark yield curve.[19]

Prospects for a European corporate bond market

EU financial market legislation and the rapid development of the fund management industry has begun to chip away at longstanding regulatory and tax impediments to the development of European corporate debt markets. These markets have remained relatively small, however. Although outstanding debt securities issued by EU private entities totaled about $4 trillion (about 87 percent the size of the U.S. corporate debt market), about 25 percent of this total was issued in international markets, of which about $268 billion were issued by nonfinancial entities. Domestic issuance in 1995 was also low compared to other

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[18]See European Commission (1995).

[19]Debt redenomination creates a number of technical problems: not all public debt is dematerialized, there are different numerical trading and clearing conventions. Price display systems will have to adapt to show national currency and euro pricing for the same bonds. See Bank of England (1996) for a discussion of some of these technical problems.

more highly developed markets: German firms issued only $0.142 billion and French firms only $6.4 billion, whereas U.K. firms issued $20.7 billion, Japanese firms $77.2 billion, and U.S. firms $154.3 billion (Table 11).[20]

The introduction of the euro is likely to accelerate the development of corporate bond markets, especially if the increased focus on credit risk in the EMU sovereign markets leads to the development of a credit-risk culture, as now exists in the United States and the United Kingdom. First, as noted earlier, a single currency provides incentives for the creation of a much larger effective European institutional investor base. The increasingly yield-conscious behavior of European investors, and the coincident growth in fund management in Europe, has expanded the investor base for corporate debt securities—EU mutual funds now manage close to $1.4 trillion (see Table 5). Although the credit-risk culture has yet to take off in Europe the way it has in the United States, even a moderate shift will have a significant impact on international capital markets. For example, if the degree of disintermediation in EU countries was to close the securitization gap (adjusted for economic size) with the United States by 25 percent, this would unleash capital flows equal to roughly $2 trillion into international capital markets. This is roughly about half as large as the entire market capitalization of EU or Japanese equity markets.

Second, EU firms have begun to show an increased desire to tap debt securities markets. An important factor spurring firms to issue debt securities is the increasingly sophisticated, value-maximizing corporate financial policies that European firms are beginning to adopt. However, the underdevelopment of domestic corporate debt securities markets has presented an obstacle to firms wishing to issue debt securities. Although this obstacle has been circumvented to some degree by tapping the international securities markets, there are significant additional obstacles to accessing the international markets for all but the largest, "brand-name" firms.

While there are reasons for optimism about the development of a European-wide corporate debt market, it will most likely not occur quickly. The remaining impediments to the development of these markets fall into two categories: excessive regulation and the narrow institutional investor base. Excessive regulatory burdens have simply prevented these markets from developing in some countries. For example, tax policy and issuance requirements prevented the development of commercial paper and bond markets in Germany until very recently. More generally, regulators in virtually all EU countries have stifled corporate debt securities markets by discouraging issuance of lower-grade corporate debt securities. Regarding institutional investors, corporate debt securities are often highly heterogeneous across issuers as well as across issues (by the same issuer), and thus the costs involved in evaluating their currency risk, credit risk, and legal risk—contract terms, such as

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[20]This figure for the United Kingdom refers to international bond issues as well because the domestic corporate bond market in the U.K. has become inseparable from the Euromarket.

Table 11. Funds Raised in Capital Markets by Non-Financial Enterprises in Selected Industrial Countries, 1990-95

(In percent of total)

	Bonds 1/	Shares	Others 2/	Total
European Union countries				
Italy	-0.68	25.55	75.13	100.00
Netherlands	1.17	42.19	56.65	100.00
Spain	1.71	29.27	69.02	100.00
Sweden	-0.88	33.73	67.15	100.00
Canada	7.14	27.91	64.95	100.00
United States	50.94	13.22	35.84	100.00
Japan	5.48	11.38	83.14	100.00

Source: Organization for Economic Cooperation and Development, OECD Financial Statistics Part 3: Non-Financial Enterprises Financial Statements (Paris: Organization for Economic Cooperation and Development, 1995).

1/ Data for short-term bonds are not available for Italy, the Netherlands, and Japan.
2/ Residual including bank financing.

covenants—effectively means that these markets will be successful only if there is a large institutional investor base. Smaller issuers, small issues, as well as firms in smaller countries—in which currency risk figures more prominently for foreign investors—therefore may face a limited investor base.[21] [22]

D. Equity Markets

The introduction of the euro is likely to accelerate the processes of competition, consolidation, and technological innovation that has characterized equity markets in recent years. In the second half of the 1980s, the London Stock Exchange attracted an increasing share of turnover in continental equities by creating a screen-based dealer market for non-UK stocks called SEAQ International (SEAQ-I) separate from the London dealer market. During this period, competition among the European exchanges was fierce. Since the early 1990s, continental exchanges have recouped a substantial share of trading with new electronic continuous auction markets, particularly CAC in Paris and IBIS in Frankfurt, and SEAQ-I has declined in importance as an organized exchange. Nevertheless, London dealers are still the primary source of liquidity for large block transactions and for 'program-trading' in a significant number of continental stocks, even though they engage in considerably less customer *dealing* in continental equities, and considerably more *brokering* through the continental bourses.[23] Thus, since the introduction of continuous electronic trading on the continent, London dealers have taken a smaller proportion of orders on their own books and have worked orders mostly through the continental markets. As such, the activity of London dealers is reinforcing the liquidity of auction markets, and the London-based dealer market and the continental-based auction markets are simultaneously competing and interdependent. Currently, London is by far the dominant equity market in Europe in terms of companies listed, market capitalization, and turnover (Table 12). On the continent, Frankfurt and Paris have the largest exchanges with a similar number of listed companies and capitalization. All other exchanges are significantly smaller.

Together with ongoing pressures from computerization and the implementation of ISD, the introduction of the euro will provide strong incentives for concentration among the

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[21]The importance of this heterogeneity of corporate debt securities is illustrated by the dominant role played by institutional investors in the most developed corporate debt securities market, the U.S. market: At end-1995, 72 percent of the stock of corporate bonds were held by domestic institutional investors, 7 percent by foreign investors, and 14 percent by households. Insurance companies were the largest single investor, holding 35 percent; public and private pension funds held 16 percent and mutual funds 8 percent.

[22]See R. Todd Smith.

[23]Marco Pagano (March 1996).

Table 12. European Union (EU) Countries, United States, and Japan: Equity Markets, 1996

	Listed Companies		Domestic Market Capitalization		Annual Turnover						
	Domestic	Foreign			Domestic	Foreign	Total	Domestic	Foreign	Total	Domestic
	(In numbers)		(In millions of ECUs)	(In percent of GDP)	(In millions of ECUs)			(In percent of EU total)			(In percent of GDP)
Markets in EU Countries											
Amsterdam	217	216	302,452	96.10	149,587	653	150,241	8.96	0.11	6.58	47.53
Athens	217	0	18,988	19.64	5,695	0	5,695	0.34	0.00	0.25	5.89
Brussels	146	145	95,752	45.40	17,849	2,914	20,763	1.07	0.47	0.91	8.46
Copenhagen	237	12	57,281	41.46	29,111	698	29,810	1.74	0.11	1.31	21.07
Dublin	61	10	27,659	52.29	4,711	3	4,714	0.28	0.00	0.21	8.91
Germany	681	1290	531,553	28.34	621,454	18,778	640,231	37.22	3.06	28.04	33.13
Helsinki	71	0	49,444	50.41	17,538	0	17,538	1.05	0.00	0.77	17.88
Lisbon	158	0	19,706	23.40	5,658	0	5,658	0.34	0.00	0.25	6.72
London	557	833	1,368,000	153.61	335,644	580,777	916,421	20.10	94.59	40.13	37.69
Luxembourg	54	224	25,910	164.53	604	17	620	0.04	0.00	0.03	3.83
Madrid	357	4	194,681	42.25	63,869	18	63,888	3.83	0.00	2.80	13.86
Milan	244	4	206,997	21.79	82,532	18	82,551	4.94	0.00	3.61	8.69
Paris	686	187	472,426	38.48	220,608	4,828	225,436	13.21	0.79	9.87	17.97
Stockholm	217	12	194,045	97.42	106,434	5,021	111,455	6.37	0.82	4.88	53.44
Vienna	94	35	25,719	14.16	8,265	281	8,546	0.50	0.05	0.37	4.55
EU total	3,997	2,972	3,590,614	52.83	1,669,560	614,006	2,283,566	100.00	100.00	100.00	24.56
Memorandum items:											
New York	2,617	290	5,395,889	90.23	3,014,383	190,392	3,204,775				50.41
Nasdaq	5,138	418	1,192,290	19.94	2,505,177	98,767	2,603,944				41.89
Tokyo	1,766	67	2,374,733	64.88	738,711	1,214	739,925				20.18

Sources: Federation of European Stock Exchanges; Federation of International Stock Exchanges; Nasdaq; New York Stock Exchange; and Tokyo Stock Exchange.

European exchanges.[24] The euro will eliminate differences in the continental electronic trading systems and make them virtually identical. The most likely development is that a European-wide equity market for blue-chip stocks will emerge into a single electronic exchange with a screen-based automated order-driven trading system, like IBIS. This will be possible only if the trading costs of this system will remain competitive vis-a-vis those of proprietary trading systems. National bourses may survive by specializing in trading low-capitalization companies: while there are incentives for this kind of trading to concentrate in a pan-European electronic trading platform, local custody, settlement, and tax systems may allow for local trading to continue. Overall, EMU is likely to further increase cross-border equity trading, and enhance both the integration of national markets and overall market liquidity.

Also uncertain is EMU's impact on competition between auction and dealer systems. If EMU enhances market efficiency and reduces equilibrium equity prices and spurious price volatility, then execution risk will diminish and immediacy will become less important. This implies that dealer markets, where investors pay a premium for immediacy in terms of higher bid-ask spreads, will experience competitive pressures from auction-agency markets, where increased liquidity will reduce execution risk. In addition, to the extent that EMU will increase cross-border asset holding and trading, counterparty risk could increase or become more difficult to assess. This will also put dealer markets at a disadvantage, because dealers would have to raise bid-ask spreads to compensate for the higher counterparty risk. By contrast, auction-agency markets usually pool this risk.[25]

There are remaining impediments that could slow down consolidation. Some provisions of the ISD—the concentration provision and the concept of "regulated market"—leave scope for "protectionism" on behalf of national stock exchanges. Differences in accounting can also prevent institutional investors from purchasing stocks of certain countries. Finally, clearance and settlement procedures can affect equity trading by increasing transaction costs, which could be reduced through centralization of clearance and settlement services in a single European central securities depository (CSD), the so-called "Euro-hub".[26]

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[24]The ISD may facilitate cross-border branching of trading systems and remote trading. Article 15.4 favors remote membership: exchanges designated as "regulated markets" no longer require approval from EU states in which they want to establish as remote members.

[25]A dealer market might be preferred because some traders may want to remain anonymous, which is usually not possible in the very transparent continental markets.

[26]There are five mechanisms for cross-border trades: (1) direct access to the home-country CSD; (2) indirect access through local members; (3) indirect access through global custodians; (4) international CSDs; (5) local-CSD-to-local-CSD. The second and third methods are most widely used. See Ian Giddy, Anthony Saunders, and Ingo Walter.

E. Derivative Markets

The euro will affect derivatives markets in two ways: several contracts will disappear or consolidate into a single contract; and a smaller number of contracts will increase the competition among European derivatives exchanges. With the establishment of EMU and only euro interest rates, nearly 200 contracts involving 13 different currencies are likely to disappear. An open question is how will the associated reduction in diversity affect the 16 European futures and options exchanges? Initiatives are likely to emerge among the smaller exchanges to establish technical linkages and common settlement procedures. This will confine the race for post-EMU supremacy in derivative contracts to Europe's big three exchanges: the London International Financial Futures Exchange (LIFFE), Europe's biggest derivatives exchange, followed by the Deutsche Terminbörse (DTB) and Marché à Terme International de France (MATIF).[27] In light of their specialization in interest rate contracts, LIFFE and MATIF are likely to be most affected by EMU. Competition among the exchanges will also be affected by the development of electronic trading. DTB will be able to capitalize on its technological prominence with a fully electronic order-driven system with almost one-third of its members trading from workstations outside Germany. Both LIFFE and MATIF have maintained an open outcry structure. While LIFFE already has an electronic capability, MATIF is likely to be seriously handicapped by the failure in the summer of 1996 to finalize a link with DTB.

Other factors could also play a role. LIFFE's leading position may be damaged if the United Kingdom is not included in EMU and if access to Target and intraday liquidity is limited. DTB might gain a competitive edge from being located in Frankfurt. MATIF could benefit from the fact that the French government has been actively issuing ECU-denominated debt since 1989 and is the leading sovereign borrower in ECU. Experience in the ECU bond market suggests that where the active cash market resides, the futures business is likely to follow. In addition, some consider MATIF the best placed exchange to trade the future euro benchmarks, since a smooth transition from the French franc to euro could be ensured by enhancing the liquidity of existing contracts. Smaller exchanges in core euro countries (Belgium and the Netherlands) will be the first to see business decline, followed by the exchanges in peripheral countries (Italy and Spain). The likely outcome is that these exchanges will offer a smaller range of equity-based local contracts.

The most direct impact of EMU on the *structure of derivatives contracts* will be the elimination of currency derivatives between the currencies of countries joining EMU. If EMU begins with core ERM countries, the negative impact on trading volumes will be muted, because trading in intra-core currency derivatives is relatively limited. Higher volume

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[27]LIFFE derives half of its volume from short-term German Bund and interest rate futures and options, while 90 percent of trading on MATIF is in French notional bond and short-term interest rate contracts. Two thirds of DTB's volumes come from stock index futures and options. Foreign exchange contracts are mainly traded in the highly liquid interbank market.

contracts between core and noncore currencies will simply change into contracts between the euro and noncore currencies; DM-lira contracts will simply become euro-lira contracts. The high volume contracts between dollars, yen, and DM-block currencies will be little affected with the euro substituting for European currencies. If EMU enhances trading within, and capital flows to, the euro-area, the demand for currency derivatives could increase. Activity in the European derivative markets may also increase during 1997-98 and 1999-2002 as foreign exchange and interest rate options are used to hedge risk in the transitional periods.

With the creation of EMU, the market for *interest rate swaps* will become larger and more liquid, as contracts of participating currencies become perfectly fungible. Enhanced liquidity is also likely to increase the use of swaps outside the banking sector. EMU will also boost the demand for options contracts on interest rate spreads and allow investors to hedge credit-risk spreads between bonds of high-debt countries and the euro benchmark. Interest-rate-spread based contracts may also develop for private debt securities.

For *bond market futures*, it is difficult to know whether the market will demand a futures contract for each national bond, or whether a generic contract will emerge. This will depend on the volatility of credit spreads between the various national issues. If the spreads are stable, the low basis risk could lead the market to develop a single liquid 10-year futures contract similar to the U.S. Treasury bond future. Otherwise, there could be a range of futures contracts one for each national benchmark issue. The selection of deliverable bonds will also be crucial. If two or more national bonds are deliverable for a generic bond futures contract, the contract could favor the cheapest bond to deliver and create liquidity of that bond at the expense of higher quality bonds. Basket-type euro futures contracts are unlikely to emerge, because derivatives exchanges would like to avoid repeating the experience of LIFFE with 10-year ECU futures contracts between 1990 and 1991. At that time, LIFFE's basket of deliverable bonds included Ecu OATS, European Investment Bank bonds, U.K. gilts, and Italian government bonds. While all bonds, in principle, had the same rating, there was, in practice, always one that was cheaper to deliver. In effect, LIFFE's contract turned out to be an inadequate hedging tool.

F. Systemic Risk Management in EMU

This section examines two remaining institutional challenges. The degree of securitization and the liquidity of financial markets rests on the ability to quickly and efficiently settle payments and to move cash. A wholesale payments system capable of safely processing a large volume of intraday payment orders is necessary to support the large turnover in securities markets needed for liquidity, the rapidly changing dealer positions financed with repurchase agreements, and margin requirements arising from futures and options markets. The first challenge involves reaping the full benefits from the Target payments system. Who has access, and on what terms, could have important implications for systemic risk management and for fully capturing the potential risk reductions of real-time gross settlement (RTGS). The second challenge involves linking supervisory and lender-of-

last-resort functions to the center of the payments system for effective systemic crisis prevention and management.

Reaping the rewards of RTGS across Europe

The main systemic problem in payments systems is the very low probability but very high cost (payments gridlock) of settlement failures. RTGS systems are being implemented in EU countries to improve payments efficiency and to reduce the potential for settlement problems. Because the euro will increase integration across national markets, cross-border transactions are likely to increase significantly, even for European countries not included in EMU. In order to implement an EMU monetary policy, to improve payments efficiency, and to reduce the potential for payments system problems, the EU will implement a new Target payments systems that links the separate national RTGS payments systems. To the extent that European (EU and non-EU) countries that have significant volumes of transactions with the euro zone are not part of EMU, the full benefits of RTGS systems will not be internalized within EMU. This is a rationale for making Target a pan-European payments system.

By not including all European countries in the Target system, alternative settlement systems for euro transactions will be developed, some of them private, and this could reduce the number of transactions across Target. Most private systems are end-of-day settlement systems in which participants in the system accumulate large gross exposures, net them at various well-defined times throughout the day, and then reach payment finality through a national RTGS system at the end of the day. If the legality of netting arrangements is tested, this could create the potential for serious liquidity problems in the unlikely event that a major institution would fail to settle. The unwinding of positions would have very high-cost consequences for third parties, with knock on effects throughout the netting system. In Out countries where netting arrangements are likely to be used to settle a significant share of these daily euro transactions, the systemic risk reductions that can be achieved in RTGS systems will not be realized. To the extent that Target participants in EMU have as counterparties participants in non-EMU EU countries that are subject to the risks of netting arrangements, Target members will not be fully be insulated from the kind of systemic risk that RTGS systems are specifically designed to eliminate.

Another remaining issue in the design of target is access to intraday and over night borrowing facilities. Some EU countries view access to Target intraday credit by non-EMU countries as having monetary policy implications. This view can be seen as recognizing the importance of measuring the impact of payment-system intraday liquidity on the ability to achieve monetary objectives, and of determining the optimal interval over which to measure this impact: a day, a week, a month, the middle of the trading day, the end of the trading day. A longstanding working assumption is that intraday liquidity for smoothing payments flows has no impact on the achievement of monetary policy objectives. There is, however, little analytical work that examines the relationship between payments system design and the impact of intraday liquidity on the ability to achieve monetary objectives.

Managing systemic risks in target

Another aspect of the Target payments system that has not been clarified yet is the allocation of responsibility for safeguarding the European-wide payments system during a financial crisis and against liquidity problems that may arise in the course of payments settlement. Safeguards would normally include mechanisms for determining when and if a problem exists, whether or not a particular institution is having difficulties during settlement because it is liquidity constrained or insolvent, and how to resolve the problem either by providing access to lender-of-last-resort (LOLR) facilities or by denying access to the payments system. The challenge is one of creating clearly understood and easily implemented crisis management mechanisms for very low probability events that impose costs on the payments system and its participants.

A potential risk is the lack of clarity about the mechanism for assessing and resolving a financial crisis involving cross-border payment flows between financial institutions within Target. At this stage, LOLR responsibility has not yet been assigned. Because the ECB is at the center of the Target payments system and has sole responsibility for monetary policy, it would be inappropriate to assign this responsibility to the NCBs even though they are responsible for the smooth functioning of their national RTGS systems. In addition, the Maastricht Treaty neither mandates nor denies ECB authority for supervising European financial intermediaries, whether they are ECB counterparties or not. The national authorities, only in some cases the NCBs, will continue to be responsible for banking supervision, and for enforcing EU directives on capital adequacy, accounting standards, disclosure requirements, and other important aspects of financial supervision and regulation and financial market surveillance.

The history of financial crisis suggests that during a fast breaking crisis, it is important for central banks to have sufficient information for making decisions about whether to provide support during a temporary liquidity problem. In many situations, problems could be addressed by the relevant national supervisory authorities, but there may arise situations where the ECB will have to act decisively and quickly. For example, the Bank of New York (BONY), a major clearing bank in the U.S. payments system, experienced a computer breakdown on November 21, 1985. Because the U.S. Federal Reserve System had recently completed a routine inspection of the bank, it was able to assess quickly the solvency of BONY and to decide that the bank was experiencing a severe liquidity problem. Because of its roles as supervisor and lender of last resort, the Federal Reserve System was able to avert a major systemic crisis by extending an overnight loan of *$22.6 billion from the discount window*, collateralized by $36 billion in securities. If European capital markets become more highly securitized, this feature of systemic risk management will need to be addressed.

There is also the potential problem of incompatible incentives: there may arise situations where national supervisory authorities would have information about the solvency of an institution but for practical reasons it is not willing or able to quickly or adequately inform the ECB. It would increase transparency of the supervisory framework and the

surveillance over EU payments systems if a mechanism was designed to deal with these and related problems. Even though "constructive ambiguity" about the conditions under which lender-of-last resort facilities will be available is a necessary element in preventing moral hazard, there should be no ambiguity among policy makers about the mechanisms that will be called upon to manage crisis situations.

III. Structural Implications for European and International Banking: Further Disintermediation, Competition, and Consolidation

The existence of larger and more liquid capital markets in Europe and the unavoidable reforms of European health, pension, and social security systems will create a large private pool of investable funds and most likely expand the role of institutional investors and the demand for specialized asset management. This could open up each national market to cross-border competition. Continental banks will respond to this challenge by stepping up their current efforts to acquire, or merge with, specialized firms, and additionally to diversify their businesses against the risk of disintermediation by forming groups with institutional investors.

The creation of more liquid European capital markets—if not a European-wide capital market—is likely to encourage small- and medium-size corporations to access securities markets. Direct access to securities markets will in turn affect the competitive position of banks and could accelerate the gradual process of disintermediation that has been taking place in European banking markets. In this scenario, credit evaluation and local market underwriting skills will become extremely valuable. Thus, *by creating incentives for the creation of broad, deep, and liquid private securities markets in Europe, the introduction of the euro and the establishment of EMU creates an environment of competition for shares of markets traditionally closely held and maintained by domestic universal banking institutions, both at the wholesale and retail level.*

A. Wholesale Banking

At the *wholesale* level, with the removal of currencies and foreign exchange risk for intra-EMU cross-border transactions, there will be few remaining barriers to entry for the large global institutions. The commoditization of wholesale services and the cost of supplying them will determine customer relations. Competition in wholesale banking is driven by price, access to distribution networks, and geographical reach. Only a limited number of large-sized financial institutions have the capital, resources, and geographical reach to compete globally in providing services to the top tier of multinational corporations and large- and medium-sized companies with international operations.[28]

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[28]There is now a consensus in the international financial markets that there is room for only 10 large global players. The "names" most often mentioned, in industry magazines and by market participants, are: ABN Amro, Barclays, Citicorp, Deutsche Bank, Goldman Sachs, J.P.

(continued...)

It is possible to identify several aspects of this competition and consolidation at the wholesale level that are related to the introduction of the euro. As noted earlier, the euro directly eliminates the "anchoring principle," advocated by many European central banks, and requiring domestic financial institutions to lead-manage bond issues, creating cross-border competition for providing this investment banking service. This new competition could lead to consolidation and greater concentration through cross-border mergers and acquisitions. The euro also eliminates the 80 percent matching rule on foreign currency exposures of insurance companies and pension funds within Europe. Under existing rules, an EU insurance companies, for example, cannot hold more than 20 percent of its assets in foreign currencies unless they are matched by liabilities denominated in the same currencies. The lifting of this restriction is likely to increase cross-border investment flows, and will open up this pool of investment funds to investment banks in EMU for providing underwriting, trading, brokerage, rating, and merger and acquisition advisory services. Banks strong in the above areas, with good placement power, are likely to see their franchises increase in value, and banks weak in these areas could be in the market for acquisitions of merchant banks and asset managers by continental European banks. Universal banks with strong investment banking franchises are also likely to benefit from EMU.

The euro is also likely to have a number of indirect effects all pointing in the direction of further consolidation in wholesale banking in Europe: lower profit margins through its general impact on competition; rationalization of foreign exchange and corporate and industrial treasury functions, which would reduce the demand for cash-management services provided by wholesale and investment banks; and reduction in the number of providers of regional and global payments processing services. This consolidation can only be hastened by the elimination of European currencies.

Competition is also likely to increase in correspondent banking as non-EMU banks reduce the number of correspondents they need inside the euro bloc. Consortia of banks providing basic electronic banking services, including payments to each others' customers in Europe, are also likely to emerge. The Target system will handle only large-value euro payments for central banks, large private banks, and very large companies, and smaller companies will have to go through banks' own payments systems and correspondent networks for low-value payments in euro. Competition in the market for wholesale money transmission services will also increase. As companies increase their cross-border activities, introduce more sophisticated treasury management, and concentrate their euro business with fewer banks, traditional home-currency correspondent banks may be unable to compete with the global

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[28](...continued)
Morgan, Merrill Lynch, Morgan Stanley, S.B.C. Warburg, and Union Bank of Switzerland. Others that are viewed as vying for a slot include: Credit Suisse First Boston, Lazard Frere. The recent mergers of Chase and Chemical banks, and of Morgan Stanley and Dean Witter are examples of what may occur in the coming years.

banks which assure cost-effective and efficient payment services around the world through their own networks.

B. Retail Banking

At the *retail* level, there is a greater need for restructuring and consolidation. The key problem is that Europe is over banked at the retail and local levels (Table 13 and 14). The most glaring consequence of this over banking is that potential EMU countries—France, Italy, Belgium, the Netherlands, Austria—have banking systems that are over staffed, and these staffs are underemployed, relative to banks operating in more efficient banking systems (the United States, for example) (Chart 1).[29] European banks are also known to provide services at noncompetitive prices. This leaves the least well capitalized and inefficient banking systems, and the banks within them, vulnerable to competitive pressures.

Despite these longstanding problems, consolidation has not occurred in Europe to the extent that it has in the United States. There have been a significantly smaller number of mergers and acquisitions, and they have tended to be smaller in size (Table 15). The absence of significant consolidation is difficult to explain against the background of strong competitive pressures and incentives for change. In recent years, local banking markets in Europe have experienced competitive pressures associated with deregulation, the abolition of capital controls, and single market initiatives. These competitive pressures have lowered net interest margins (Table 16) and reduced bank profits (Table 17).[30] Some banking systems have also had to increase provisions for non-performing loans as real estate and property related sectors weakened in the presence of declining or soft real estate prices. In most cases, European banks have been unable to counteract these trends with cost reductions and increased revenues in other areas of financial services. The resistance to consolidation might be attributable to factors such as home currency advantage, legal and regulatory restrictions, ownership structures that inhibit entry and exit, extensive branch networks, and strong traditional and cultural relationships.

An open question is whether EMU will provide the impetus for change necessary for restructuring and consolidation? One possible channel is the introduction of the euro itself. In the past, exchange rate stability has been associated with narrowing net interest margins among the "core" countries. One possible inference is that the euro might provide an added element of competition (see Table 16).[31] Additional pressures on interest rate margins would

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[29]The United States is a valid benchmark because it has experienced a first wave of bank restructuring and technological innovations.

[30]See OECD (1996).

[31]The link between exchange rate stability and net interest margins is supported by the experience with Italian and U.K. spreads, both of which stopped converging during the 1992-93 period of extreme exchange rate turbulence. In addition, the independent role of exchange rate stability is supported by the significant convergence of margins before the introduction of single market initiatives in 1992.

Table 13. Banks' Restructuring: Number of Institutions and Size Concentration, 1980, 1990, and 1995 1/

	Number of Institutions						Concentration: Top Five 2/		
	1980 3/	1990	1995 4/	Peak (since 1980)			1980 5/	1990	1995 6/
					Year	Percent change 7/			
	(In numbers)						(Percentage share in total assets)		
European Union countries									
Belgium	148	129	150	163	1992	-8	64 (76)	58 (74)	59 (73)
Finland	631	498	352	631	1985	-44	63 (68)	65 (69)	74 (83)
France	1,033	786	593	1,033	1984	-43	57 (69)	52 (66)	47 (63)
Germany 8/	5,355	4,180	3,487	5,355	1980	-35			17 (28)
Italy	1,071	1,067	941	1,109	1987	-15	26 (42)	24 (39)	29 (45)
Netherlands	200	180	174	200	1980	-13	73 (81)	77 (86)	81 (89)
Spain 9/	357	327	318	378	1982	-16	38 (58)	38 (58)	49 (62)
Sweden	598	498	112	598	1980	-81	64 (71)	70 (82)	86 (93)
United Kingdom	796	665	560	796	1983	-30	63 (80)	58 (79)	57 (78)
United States 10/	35,875	27,864	23,854	35,875	1980	-34	9 (14)	9 (15)	13 (21)
Japan	618	605	571	618	1980	-8	25 (40)	30 (45)	27 (43)
Other countries									
Canada	1,671	1,307	1,030	1,671	1984	-38		55 (78)	65 (88)
Australia	812	481	370	812	1980	-54	62 (80)	65 (79)	67 (79)
Norway	346	165	148	346	1980	-57	63 (74)	68 (79)	58 (71)
Switzerland	478	499	415	499	1990	-17	45 (56)	45 (57)	50 (62)

Sources: British Bankers' Association; Building Societies Association; national data; and Organization for Economic Cooperation and Development.

1/ Deposit-taking institutions, generally including commercial, savings and various types of mutual and cooperative banks; for Japan, excluding various types of credit cooperatives; and for Canada, excluding trust and loan companies (in 1994, 83 institutions).

2/ Figures shown in parentheses are for top ten institutions.

3/ For Finland, 1985; Canada and France, 1984; Spain, 1981; and the United Kingdom, 1983.

4/ For Finland, Japan, and Sweden, 1994.

5/ For Finland and the Netherlands, 1985; France, 1986; Italy, 1983; and Switzerland, 1987.

6/ For Belgium, Japan, Switzerland, and the United Kingdom, 1994; and Finland, 1993.

7/ From peak to most recent observation where applicable.

8/ For number of institutions, western Germany only. Data for the whole of Germany: 1995, 3,784; percentage change, -30 percent.

9/ Concentration data for commercial and savings banks only.

10/ Excluding credit unions: 1995, 12,067; percentage change, -36 percent.

Table 14. European Union Countries, North America, and Japan: Population per Bank Branch, 1985, 1992, and 1994

	1985	1992	1994	Change 1985-92	Change 1992-94
				(In percent)	
European Union countries					
Austria		1,695	1,715		1.18
Belgium	395	613		55.19	
Denmark	1,534	2,096	2,316	36.64	10.50
Finland	1,670	2,106	2,784	26.11	32.19
France			2,212		
Germany	1,569	2,050	1,832	30.66	-10.63
Greece		8,943	8,384		-6.25
Ireland					
Italy		3,221	2,862		-11.15
Luxembourg	1,523	1,287	1,090	-15.50	-15.31
Netherlands	3,025	2,019	2,116	-33.26	4.80
Portugal	6,633	3,431	2,917	-48.27	-14.98
Spain	1,182	1,100	1,101	-6.94	0.09
Sweden	2,794	2,990	3,281	7.02	9.73
United Kingdom	4,163	4,937	5,272	18.59	6.79
Memorandum items:					
North America					
Canada					
Mexico	21,814	25,330	21,441	16.12	-15.35
United States	5,596	4,885	4,690	-12.71	-3.99
Japan					

Source: Organization for Economic Cooperation and Development (OECD), Bank Profitability: Financial Statements of Banks 1985-1994 (Paris: OECD, 1996).

Table 15. Mergers and Acquisition Activity in Banking, 1989-96 1/

					Value							
	1989-90	1991-92	1993-94	1995-96 2/	1989-90	1991-92	1993-94	1995-96 2/	1989-90	1991-92	1993-94	1995-96 2/
	(In numbers)				(In billions of U.S. dollars)				(In percent of mergers and acquisitions in all industries)			
European Union countries												
Belgium	11	22	18	12	0	1.0	0.6	0.4	0.2	14.1	7.0	7.9
Finland	6	51	16	4	0.4	0.9	1.0	0.8	13.9	22.3	21.7	11.3
France	52	133	71	43	2.7	2.4	0.5	3.2	5.1	4.3	1.0	10.4
Germany	19	71	83	27	1.1	3.5	1.9	0.7	4.5	6.5	7.6	3.5
Italy	41	122	105	65	8.2	5.3	6.1	3.0	22.7	15.6	17.7	19.7
Netherlands	12	20	13	7	10.9	0.1	0.1	0.8	56.3	0.2	0.5	9.5
Spain	30	76	44	26	4.0	4.3	4.5	2.1	18.5	13.5	21.5	34.1
Sweden	10	38	23	8	2.0	1.1	0.4	0.1	8.8	3.8	2.0	0.4
United Kingdom	86	71	40	28	6.4	7.5	3.3	21.7	2.6	6.5	3.4	12.4
United States	1,501	1,354	1,477	1,176	37.8	56.8	55.3	82.5	7.3	18.7	9.0	13.5
Japan	8	22	8	17	31.2	0	2.2	33.8	71.8	0.3	18.8	77.0
Other countries												
Canada	13	29	31	14	0.8	0.5	1.8	0.1	1.3	1.9	4.1	0.3
Australia	23	19	20	9	2.3	0.9	1.5	2.5	4.3	3.6	5.7	5.8
Norway	12	23	24	2	0.4	0.1	0.2	0.4	9.2	1.2	5.7	4.4
Switzerland	31	47	59	14	0.5	0.4	3.9	0.7	4.7	9.5	43.4	1.6
Total	1,855	2,098	2,032	1,452	108.6	84.7	83.2	153.0	9.6	11.7	8.5	14.0
Memorandum item:												
Total non-bank financial	2,075	2,723	3,267	2,267	99.0	63.7	122.2	90.7	8.8	8.8	12.5	8.3

Source: Securities Data Company.

1/ Classified by the industry of the target; completed or pending deals; announcement date volumes.
2/ As of April 4, 1996.

Table 16. Net Interest Margins, 1989-95 1/

(In percent of average earning assets)

	1989	1990	1991	1992	1993	1994	1995	Change from High to 1995
European Union countries								
Austria	1.91	1.95	1.95	2.13	2.01	1.96	2.13	0.00
Belgium	2.07	2.04	1.84	1.85	2.06	1.98	1.76	-0.31
Denmark	2.18	2.47	2.28	2.63	2.40	2.37	2.10	-0.53
Finland	1.96	2.19	1.89	1.34	2.90	2.73	2.12	-0.78
France	3.20	2.89	3.28	3.18	2.49	2.51	2.21	-1.07
Germany	1.72	2.10	2.07	2.43	3.35	2.96	2.60	-0.75
Greece	3.69	2.73	1.26	0.12	-0.65	0.83	1.75	-1.94
Ireland			1.27	0.91	2.92	2.04	1.98	-0.94
Italy	3.62	3.71	3.38	3.41	3.75	2.97	3.06	-0.69
Luxembourg	0.46	0.50	0.46	0.88	1.02	1.01	0.93	-0.09
Netherlands	0.92	0.93	1.03	1.27	2.72	1.66	1.70	-1.02
Portugal		6.32	6.06	5.89	3.45	2.84	2.87	-3.45
Spain	4.93	5.25	4.85	4.18	5.12	3.98	3.23	-2.02
Sweden	2.17	2.72	3.65	2.15	1.62	-0.99	5.52	1.87
United Kingdom	0.35	0.48	0.68	1.67	2.22	1.68	1.66	-0.56
Memorandum items:								
North America								
Canada	2.40	2.60	2.43	2.29	2.10	1.81	1.93	-0.67
Mexico	1.21	5.21	6.53	6.73	3.54	2.27	3.10	-3.63
United States	3.25	3.32	3.43	6.47	4.39	3.40	2.77	-3.70
Japan	0.48	1.90	2.07	3.53	2.72	2.22	2.36	-1.17

Source: The IBCA Ltd.

1/ The shaded numbers indicate the highest net interest margin for the 1989-95 period for each country.

Table 17. Banks' Profitability

	Pre-tax Profits 1/			Return on Assets 2/	
	1980-82 3/	1986-88	1992-94	1994	1995
	(In percent of assets)				
European Union countries					
Belgium	0.40	0.40	0.30		
Denmark 4/				0.29	1.20
Finland 5/	0.50	0.50	-1.60	-0.69	-0.16
France	0.40	0.40	-0.10	0.17	0.27
Germany	0.50	0.70	0.50	0.52	0.56
Italy	0.70	1.00	0.80		
Netherlands	0.30	0.70	0.60	0.69	0.72
Spain	0.70	1.10	0.60	0.70	0.79
Sweden	0.30	0.80	0.50	0.55	1.23
United Kingdom	1.10	1.00	0.70	1.22	1.27
Memorandum items:					
North America					
Canada 6/	0.50	1.00	1.10	1.12	1.16
United States	1.00	0.70	1.60	1.81	1.87
Other countries					
Japan 6/ 7/	0.50	0.60	0.20	-0.21	-0.75
Australia 8/	0.90	1.20	0.70	1.60	1.82
Norway	0.60	0.00	0.20	1.31	1.81
Switzerland	0.60	0.70	0.60	0.63	0.52

Sources: The IBCA Ltd; and Organization for Economic Cooperation and Development as adapted from Bank for International Settlements, 66th Annual Report (Basle: Bank for International Settlements, 1996).

1/ All banks for Australia, Belgium, the Netherlands, and Switzerland; and commercial banks only for other countries (OECD data).

2/ Pre-tax profits of major banks (IBCA data).

3/ For Australia, Belgium, and France, 1981-82; and for Canada, 1982.

4/ The portfolio of securities is marked to market.

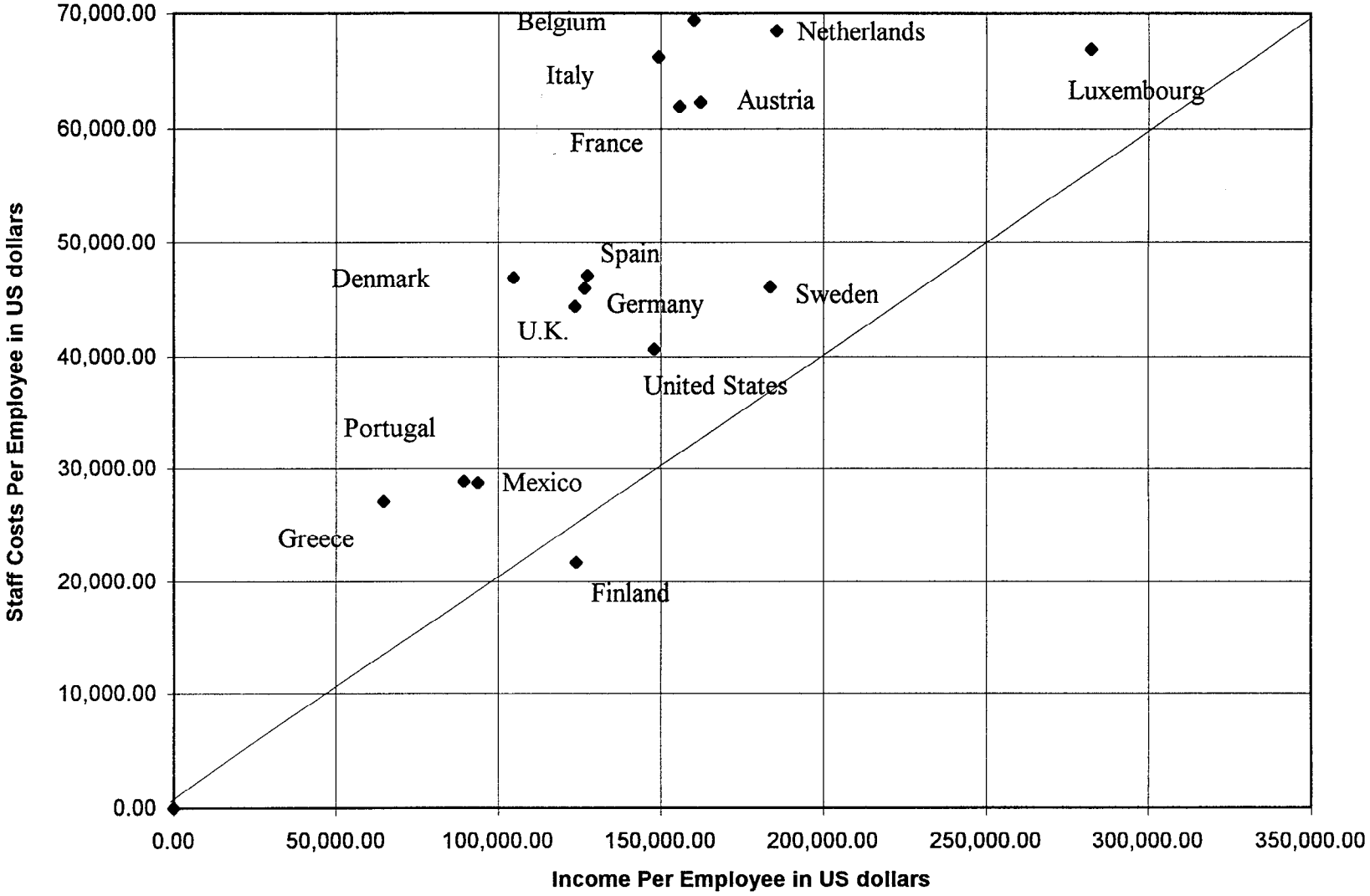
5/ The 1994 and 1995 reserves are not fully comparable due to a break in series.

6/ Fiscal years.

7/ The 1994 and 1995 date are combination of half-year results at an annual rate and IBCA estimates.

8/ Fiscal years for 1994 and 1995.

Chart 1.
Labor Costs and Productivity in Banking, 1994



Source: Organization for Economic Cooperation and Development, Bank Profitability: Financial Statements of Banks 1985-1995 (Paris: Organization for Economic Cooperation and Development, 1996).

come from the emergence of EMU-wide securities markets, the harmonization of reserve requirements, and the greater transparency of financing terms and conditions associated with a single currency.

EMU could also increase the likelihood of consolidation through cross-border bank mergers and alliances, as the more aggressive institutions position themselves to satisfy the increased demand for EMU-wide banking services that could come from greater cross-border trade and competition in European industry. While large European corporations are already requesting European wide banking services, EMU could extend this demand to medium- and small-sizes firms that rely on retail banks for many of their needs. Households would also be likely to increase the demand for EMU-wide banking services. Competition in all of these areas is likely to increase between the stronger domestic and European financial institutions looking to increase market shares and to penetrate markets in other EMU countries. Some competition could also come from large and fully vertically integrated financial institutions, including some global banks (Citicorp and Deutsche Bank for example). In addition, some economic barriers to entry could be eroded by the introduction of the euro, although this is likely to occur indirectly through the euro's impact on securities markets and institutional investors and their impact on bank disintermediation. What all this implies is that EMU could make banking markets in Europe more "contestable" in the sense that the potential for competition from new entrants could act as a disciplining mechanism on incumbents, and perhaps lead to more consolidation.

Given these pressures for change, how might restructuring take place within EMU? If the competitive pressures outlined above are allowed to exert their influence unconstrained, it would be reasonable to expect competition to lead to further mergers of small- and medium-sized domestic institutions (some defensive some offensive), cross-border mergers, significantly fewer institutions, more electronic branching, better and more efficiently provided services, and customer access to regional, international, and global markets. The number of institutions and branches would decline gradually, and the average size of institutions would increase as consolidation takes place. Staff levels would decline slowly through attrition. Much of the adjustment could be internalized within the banking industry itself. In an environment where regulations, union strength, and extensive public ownership make it difficult to close banks and to reduce costs through downsizing, the stronger institutions may be called upon to merge with poorly capitalized banks. In other instances, mergers will aim to boost profits without incurring the pain of cost cutting. Among the more successful or viable institutions, large banks will continue to purchase smaller banks (savings institutions, community banks), in part to obtain access to relatively high-margin deposit bases and to diversify funding sources by expanding the branch network. Some of the more aggressive smaller banks would engage in defensive mergers or outright takeovers. Larger banks may also try to increase diversification and to acquire a hedge against disintermediation, by establishing alliances with mutual funds and insurance companies. Computer technology will also aid in the consolidation process by allowing banks to concentrate back office operations away from individual branches, and to realize important economies of scale. The acquisition of technology may motivate some mergers, because it may allow some banks to gain access to

the financial resources necessary to fund the investments required to acquire and maintain competitive IT infrastructures.

The euro will provide additional pressure for change but major progress will occur only after some structural issues are addressed. Obstacles have remained in place even after the introduction of the Second Banking Directive,[32] and differences in taxation, regulations, and accounting and business practices, and the absence of an EU company law impede cross-border entry. Labor market laws will also continue to place limits on the potential efficiency gains from consolidation. Labor laws in Europe are estimated to limit the potential costs savings from bank mergers to half the savings that would be possible in the United States. Ownership structures in Europe are also likely to continue to prevent market forces from operating. Extensive state ownership delays both entry and exit from the banking system,[33] resulting in a continued build-up of imbalances in troubled public institutions. In addition, institutions may continue to pay little attention to profitability because creditor and shareholder discipline is reduced by the fragmentation of debt and equity claims, and by regulatory obstacles to takeovers.[34] Another factor is that European banking is still characterized by institutions with a national and often regional orientation. U.S. experience suggests that the inability to diversify across state boundaries was a major factor in the difficulties faced by several banking institutions. Finally, in the United States, where labor market legislation provides significant scope for downsizing, the most important benefit of mergers was increased profitability from a better diversification of funding sources and loan portfolios and not cost savings.[35]

The experience of Nordic and English-speaking countries, where banking crisis occurred before restructuring took place, and the more recent experience with resolving financial system problems in Japan, suggests that it is unlikely that Europe will be able either to grow out of its problems or resolve them entirely through private efforts unless there are further reforms. In addition, restructuring and consolidation in Europe is unlikely to be aided

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[32]For example, a British bank which established operations and began to offer interest bearing current accounts in France was forced to cease this practice on the grounds that French banks were prohibited to pay interest on such accounts and that the efficacy of monetary policy was threatened.

[33]Even where there is a strong political will to do so, privatization is complicated by public ownership structures. German saving banks (*Sparkassen*) carry as capital a guarantee from local municipalities. Italian public banks are controlled by non-profit organizations (*Fondazioni*). In addition, exit may also be delayed, as state-owned inefficient banks are usually more difficult to close down than private ones.

[34]See BIS.

[35]See OECD (November 1996).

significantly by state interventions on a scale similar to the interventions that accompanied the restructuring of the European industry in the 1980s.[36] The funds available to bail out banks are likely to be limited, in the short run, by the commitments of EMU member countries to uphold the stability pact and to achieve further fiscal consolidation. In addition, any attempt to bail out troubled institutions might be prevented by EU regulations that guarantee fair competition and try to maintain a "level playing field" in the market for banking services.[37]

In summary, the introduction of a single currency is likely to provide additional competitive pressures that could potentially accelerate the desirable processes of restructuring and consolidation in European banking system. Unless structural reforms are implemented across Europe, there is the risk that rigidities in labor markets, public ownership structures, and other policies affecting the adjustment in banking markets would delay or prevent these pressures from having their desirable effects. This would allow financial problems in troubled institutions to build up to the point where crises might be unavoidable. If this occurs, the inconsistencies between EMU-wide plans for fiscal consolidation and existing financial sector policies will become glaring.

C. Financial Institutions

Overall, it is an open question which types of financial institutions will be able to take advantage of these opportunities and to deal better with the likely increase in bank disintermediation. Those firms that are better positioned to compensate for the decline in loan demand with non-interest income, from placement services for example, will have an advantage. If the introduction of the euro leads to the creation of less segmented and more liquid securities markets, then it will encourage the development of financial intermediation based on direct access to securities markets. The predominance of this model of finance in the United States, the United Kingdom, and in international markets reflects the market reality that, in the absence of strong regulations that create and protect a clear niche for banks, the business of taking deposits and providing loans—banking—has a role in finance as long as the cost of borrowing directly (through private placements of the securities markets) exceeds the cost of borrowing indirectly through banks.[38] By making European capital markets more liquid and efficient, the introduction of the euro has the potential for encouraging further direct financing and for reducing the role of bank intermediation throughout Europe.

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[36]In that instance, several European governments smoothed the process by directly injecting funds, extending the scope of unemployment and welfare subsidies, and authorizing costly early retirement.

[37]Within the EU, public funds have been injected into financial institutions in recent years in Finland, France, Italy, Norway, and Sweden.

[38]See John G. Gurley and Edward S. Shaw.

Another factor that could drive European entities toward more direct financing is the cost of acquiring information. It has been argued that financial intermediaries emerged because it is inefficient for many shareholders each to incur the cost of monitoring a firm's management.[39] To some extent information costs explain the development and growth of universal banks[40] in Europe, as their role as shareholder allows them to have an informational advantage over individual investors. To the extent that EMU will increase the integration of European markets for goods and services, it will be easier for investors to assess the performance of firms as the need for detailed knowledge of each local market diminishes. If this occurs, the comparative advantage of universal banks is likely to diminish. As such, American investment firms would have a significant skill-based advantage, because they specialize in credit evaluation in the context of liquid securities markets.[41] The development of European capital markets could then be seen as a reduction in the barriers to entry for securities firms.

Only the largest of the European universal banks appear to be reasonably well positioned to counteract some of these advantages. First, they should have little problem in using their information-gathering advantage to move into credit valuation and bring an increasing number of firms to the bond and equity markets. In addition, their role of shareholders will be crucial in influencing the financing choices of corporations and preventing a too rapid shift towards equity and bond financing. When banks act as shareholders, they can distort the financing decisions of a firm to the point that the share of debt of the participating firm exceeds the level which maximizes the firm's value.[42] In this respect, a major penetration of American-style investment banks in the banking market of continental Europe would be possible only if a parallel shift in the prevailing form of corporate governance towards the securities model of financial intermediation were to be demanded by customers and to take place.[43] These counterbalancing factors suggest that any shift of financial activities away from the large European universal banks will be gradual. However, it is likely that the many small- and medium-sized financial institutions within Europe that have tried to emulate the universal banking model will be vulnerable to competition from larger financial institutions and more

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[39]See Douglas W. Diamond.

[40]A key feature of universal banks is that they hold equity shares large enough to monitor corporations. See Alfred Steinherr.

[41]Alfred Steinherr.

[42]See Masahiko Aoki.

[43] The greater the liquidity of the secondary market, the more effective is the securities model of financial intermediation as a form of corporate governance based on the takeover mechanism. See Patrick Bolton and Ernst-Ludwig von Thadden.

efficient small- and medium-sized intermediaries. One can also expect greater specialization among the middle tier institutions.

IV. The Euro and International Capital Flows

In 1995, EU entities purchased assets worth about $142 billion from U.S entities (including foreign direct investment) and sold assets worth about $155 billion to U.S. entities; by year end, European entities held roughly $650 billion in U.S. financial assets (including bank loans and deposits), while U.S. entities held roughly $638 billion in European paper.[44] The introduction of the euro and the establishment of EMU are likely to alter the size and pattern of capital flows to and from the euro zone and the allocation of international portfolios. These flows will be driven by three main forces: (1) the strength and stability of the euro; (2) the role of the euro in the international monetary system both as a reserve currency and as a vehicle currency for trade invoicing and payments; and (3) the future depth and liquidity of the EU financial markets.

A. Official Flows

The role of the euro in the international monetary system will ultimately be determined by the future stability and strength of the euro vis-a-vis the dollar and yen, and by the share of the euro in international trade and payment flows. Although it is difficult at this stage to speculate on the future monetary policy stance of the ECB, the independent status and strict mandate of pursuit of price stability that have been entrusted to the institution, and the strict fiscal stability pact agreed by the member countries would be conducive to a strong and stable euro.

There has been considerable discussion in the research publications of the large commercial and investment banks about the impact of the euro on central bank reserves.[45] For several reasons, the initial impact of EMU on the level and currency composition of the reserves of EU central banks is likely to be smaller than suggested by many of these analyses. As of October 1996, the foreign currency reserves held by the eight central banks deemed by markets as most likely to join EMU on the first round totaled about $200 billion. About 25 percent of these reserves are in core EU currencies that will probably be converted into euro domestic assets, and either kept on central banks balance sheets or transferred to the Treasury. A leading investment house has estimated that monetary union would leave EMU central banks with up to $50 billion in excess reserves that will be sold on foreign exchange markets. Such estimates, which are based on an arbitrary ratio of reserves to imports, overestimate the excess reserves of the ESCB, as trade flows are an inappropriate yardstick for determining the optimal level of reserves of industrial countries central banks. Indeed, although there is a

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[44]These figures are from various recent issues of the *U.S. Survey of Current Business*.

[45]See for example J.P. Morgan and Paribas Capital Markets.

correlation between trade flows and foreign reserves in most developing countries, such a link is generally weak in industrial countries. In industrial countries, reserves do not finance imports, which are funded by the private sector, but instead are solely used for intervention purposes. In the absence of capital controls, the size and variability of the ESCB foreign reserves would be determined by capital flows and the exchange rate policy of the ECB rather than by trade flows,[46] and by ERM II commitments.

Outside of the euro zone, shifts in international official reserves into euros are likely to be influenced by the future role of the euro in foreign exchange markets, the liquidity of the euro treasury bill market, and the stability and diversification benefits of the euro. One of the reasons for the predominant role of the dollar as a reserve currency is the existence of liquid U.S. Treasury securities markets. In contrast, German and Japanese short-term treasury markets are relatively illiquid.[47] As EU financial markets become more integrated under a single currency, the euro treasury bill market would gain in size and liquidity, and offer an attractive alternative to central banks holdings of U.S. Treasury bills. It may also be the case that a number of Asian and Middle East central banks would welcome increasing the non-dollar share of their reserves, if vehicles for short-term investments were to be developed. The euro treasury bill market may not attain the liquidity and standardization of the U.S. Treasury markets, however, due to the lack of a single European federal issuer.

The role of the euro as a reserve currency would also grow as a number of countries, especially in Eastern and Central Europe and perhaps in North Africa, anchor their currencies to the euro in their drive to become part of the monetary union at some point in the future. The number of countries pegging their currency to the euro may also increase relative to those that currently peg their currency to a basket of European currencies, as a single currency peg is easier to manage and more stable than a multiple currency peg.

B. Private Flows

The most significant source of capital inflows to the euro zone is likely to emanate from international private investors rather than from central banks, given the relative size of their assets. In addition to the factors discussed earlier, the direction and size of private capital flows to the euro zone will be determined by the size, depth, and liquidity of the euro capital markets, and the diversification benefits of the euro vis-a-vis the main international currencies.

As discussed above, the introduction of a single currency is expected to increase the degree of homogeneity in European capital markets and the standardization of financial products across Europe, bringing the full fruits of the single market to European financial

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[46]See Paul R. Masson and Bart Turtelboom for a detailed discussion of this issue.

[47]German Bu-bills have been limited to DM 20 billion, too small an amount to satisfy central banks holdings of short-term government paper.

markets. The extent and speed of integration of the European government bond markets, and the emergence of a single euro government bond market would be key factors for attracting international flows to the euro zone. The immediate consequence of a single currency and monetary policy would be the development of a single euro repo market, which would act as a catalyst for the development of a single euro bond market. A single euro bond market would become the main competitor of the US bond market for international capital. It is inevitable that international institutional investors would be attracted by the large pool of funds in a single currency, and reallocate a significant portion of their portfolios to the euro capital markets to be exposed to such a market.

Over the medium-term horizon, the single currency is also likely to lead to the development of a euro corporate bond market. A corporate bond market would increase the number of European firms with credit ratings, further enhancing their attractiveness to foreign institutional investors constrained by internal regulations to invest only in rated companies. Although a higher issuance in the euro debt market could have some dampening effect on the external value of the euro, it is likely that the demand effects would more than offset the supply effects.

In addition to the expected international flows in bond markets, private flows to euro equity markets are likely to increase. In particular, large institutional investors, that have avoided taking an exposure to some of the European equity markets due to their small size, would shift a greater share of their international portfolios to those markets as they become more integrated. Similarly, the emergence of index funds across Europe--a prized investment vehicle for international pension fund managers—would expand the vehicles available for institutional investors to invest in EU capital markets. International portfolio flows into euro equity markets are likely to be less marked than portfolio flows into bond markets, however, as segmentation among domestic markets may persist, and the market capitalization of continental Europe remains small relative to that of the United States.

The disappearance of core European currencies may affect the volatilities and cross-country correlations of euro securities prices, and hence the diversification benefits of the euro to international investors. The theoretical literature examining the relationship between exchange rate volatility and asset price volatility, although extensively researched, remains largely inconclusive. Comparisons of the volatility of bond or equity markets returns across various exchange rate regimes suggest that there is a positive correlation between exchange rate volatility and securities market volatility. For example, core-EMU countries that credibly pegged their exchange rate to the deutsche mark between January 1989 and December 1994 experienced low volatility in both the foreign exchange and bond markets.[48] The relationship between the exchange rate volatility and equity prices volatility was also positive, albeit weaker. Insofar as the EMU would be a credible and irrevocable fixed exchange rate regime,

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[48]See Vincent Bodart and Paul Reding.

the volatility of euro bond and equity prices is likely to decline in the euro zone, further enhancing the attractiveness of euro capital markets to foreign investors.

The relationship between exchange rate stability and the cross-country correlation of securities prices is also unresolved theoretically. There is evidence, however, that greater exchange rate stability and market integration tend to increase the cross-country correlation of securities prices.[49] To the extent that EMU would increase the economic integration of its member countries and the integration of their financial markets, cross-country correlation of business cycles in the euro zone should increase. The higher correlation of the fundamentals of the constituent countries, and the elimination of idiosyncratic monetary policy shocks within the euro zone would in turn lead to a higher correlation of euro bond and equity prices. The higher correlation of euro asset prices, however, would lower the diversification benefits of the euro relative to its constituent currencies and may lead to some portfolio shifts towards non-EMU currencies (e.g., Swiss Franc, pound sterling) to recapture these diversification benefits. Considering that core EU asset prices have been highly correlated in the past few years, portfolio shifts related to losses of diversification benefits are likely to be small.

The impact of the euro on the capital flows of European pension funds and insurance companies is likely to be negligible initially as most of the regulations limiting the foreign investments of these institutions are based on allocations between bond and equity markets, and domestic and international markets. As pension and insurance funds' international investments are governed by the 80 percent currency matching requirement of the EU Third Life Directive, the introduction of the euro should not affect the non-euro currency allocation of pension funds.[50] The introduction of the euro would only allow greater diversification of European pension funds within the euro zone, as the removal of foreign exchange risk allows pensions to tap into a broad array of assets that have become eligible investments. As such, insofar as the euro zone becomes a domestic market for pension funds and insurance companies, flows into euro bond and equity markets would increase, further deepening euro capital markets.

The introduction of the euro would have marginal implications on EU pension funds investments outside the euro zone, however. The rules that have anchored institutional investors and pension funds to their domestic markets will be broadened to the EU market, but won't necessarily spill over, at least initially, to international capital markets. Over the medium term, however, the move of European pension funds from fixed-benefit schemes to fixed-contribution schemes may have an impact on asset allocation, as fixed-contribution schemes are more return oriented than fixed-benefit schemes, and hence may induce greater investments in international markets.

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[49]See Vincent Bodart and Paul Reding and Jeffrey A. Frankel.

[50]Currently, EU pension funds invest 11 percent of their assets overseas, compared to less than 10 percent for US pension funds.

Investors' shift of funds into the euro zone are likely to be gradual as both the euro and the credibility of the ECB would be untested. Some divestment away from the deutsche mark and into the dollar by U.S. and Asian investors has already occurred in view of uncertainty about the composition of the euro and the future monetary stance of the ECB. As the euro reveals its colors and the euro bond markets acquire liquidity and depth, a significant reallocation of portfolio by both institutional investors and central banks towards euro-denominated assets would undoubtedly occur, with a positive impact on the external value of the euro. Shifts of funds would reflect the greater attractiveness of euro bond and equity markets, and the share of EU economies in international trade and payment systems. In the long run, the euro may become a strong competitor to the dollar as a reserve currency. As an international transaction currency, however, the euro may take longer to challenge the dollar, due to the predominant role of the dollar in international payments systems, the size and liquidity of the U.S. capital markets, and the low transaction costs of the dollar.

V. Summary and Conclusions

By directly reducing transactions costs, and removing the volatile currency-risk component of intra-EMU cross-border financing costs, the introduction of the euro provides incentives for, and opens up the possibility of, greater reliance on direct financing in European capital market. These important changes will shift the focus of both borrowers and savers to the remaining, and significantly less volatile, components of risk and asset pricing, including credit, liquidity, settlement, legal, and event risks. In effect, the "currency culture" that now exists in European financial capitals will be transformed into a "credit-risk culture." Borrowers will try to minimize the impact on financing costs of each of the remaining perceived risks under their control by improving their credit ratings and by borrowing in the lowest cost "locations" across a more geographically diverse investor base within Europe. At the same time, lenders will try to accurately assess and monitor underlying relative asset values and credit risk, and will focus on pricing-in all of the other remaining components of risk. Simultaneously, if current fiscal reform plans are implemented, there soon will be a large pool of investable funds flowing out of the public sectors--pensions, social insurance, and health insurance funds—into the European and perhaps international capital markets, all denominated in euro and all seeking various tradeoffs of risk and return.

All of these structural changes in European finance point in the direction of less segmented markets for repurchase agreements, short-term interbank funds, sovereign and private bonds, equities, and derivative instruments. From a pure finance-efficiency perspective, a favorable outcome would be the creation of deep, liquid, and efficient *EMU-wide* money, financial, and capital markets. The market pressures for pushing European capital markets in this direction may be strong enough to achieve the efficiency gains promised by the creation of a single European market envisioned in the Maastricht Treaty. But there are remaining barriers and restrictions that may prevent this outcome, and the architecture of the ECB and the way it implements monetary policy could have a constraining influence on how far securitization can go in EMU.

Whether or not the potential improvements in market depth, liquidity, and efficiency are achieved, the greater reliance on direct financing in EMU will have important implications for the shape of European and international capital markets, cross border competition, and the ongoing global processes of competition, restructuring, and consolidation. The ongoing, and perhaps accelerated, process of disintermediation will deepen and broaden the effect of competition on bank restructuring and consolidation that would have occurred across the banking markets in Europe even without the introduction of the euro. At the wholesale level, competition will be strong for bringing new bond and equity issues to market, and for capturing the customer relationships that have been traditionally the domain of European universal banks. Only the largest and strongest of European universal banks will be able to compete in wholesale markets, and there may be a spate of mergers and acquisitions for achieving the scope and scale of bank operations necessary for survival. The greatest competition may well come from U.S. investment banks and U.K. merchant banks.

At the retail level, local banks will most likely maintain their stronghold on local deposit bases, as has occurred in the United States. But local banks will have to become somewhat larger and significantly more efficient in supplying modern financial services at competitive prices to small local business and to households. There is significant scope for consolidation and restructuring among local domestic institutions, and also room for cross-border mergers for diversification purposes and for buying into expertise of local investor bases. There is also the possibility for some fully vertically integrated operations to make successful inroads into smaller local markets in small cities and even villages (Citicorp, Deutsche Bank, Societe Generale, NatWest). If these private market adjustments are to take place, remaining obstacles will have to be dismantled, and if they do not take place, small and medium sized inefficient intermediaries will find it difficult to earn sufficient revenues to cover costs.

All of these changes, not just the introduction of the euro, have implications for international portfolio adjustments and for capital flows. To the extent the euro is perceived as a stable store of value, it will assume an important role as a reserve currency, probably exceeding the aggregate roles of the former currencies of EMU member countries. Arithmetically, this would make the euro the second most important reserve currency next to the dollar. Whether the euro also takes a significant share of international financial transactions and trade invoicing is less certain, though clearly possible. Although it is difficult to say with certainty, it is reasonable to expect that as market segmentation diminishes across the various national capital markets within EMU, more capital will flow to and from the euro zone. Whether this implies a strong or weak euro is difficult to project. This will depend on the now uncertain macroeconomic outcomes, including the ability of EMU members to continue along the path of fiscal consolidation and structural reform, and the monetary and exchange rate policies pursued by the ECB.

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