The euro and the large banks' behaviour within the EMU – Entrepreneurial strategies and monetary policy [*]

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For years western European credit institutions have been preparing for the European Monetary Union (EMU). The installation of the euro will have a considerable influence on *wholesale-, consulting-* and *investment-banking* business;[1] however, it is *retail-banking* in particular that will gain a completely new quality through the common currency. In expanding its balance sheet, each bank of a member state of the EMU can immediately supply a customer in another member state with the currency he requests. Money that is used in Germany might have been created in another member state of the EMU.

Many banks have already operated in an international environment. However, so far they have not been able to create currencies that are used outside their national boundaries. This is why the regional limited catchment area of retail-banking is enormously widening.

To most bank customers this fact is certainly irrelevant; they will still prefer the bank nearby. Yet in the future this bank will also have to carefully observe innovations in banking affairs in a foreign member state, and it will soon have to adopt these innovations in order to be at a competitive advantage with local rivals as regards to technological development, and disintermediation and securitization.[2] In certain areas of retail-banking – i.e. large credits, mortgage loans,

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[1] For an overview see Borchert (1998, p. 244).
[2] See Revell (1987, pp. 120).

investment credits, etc. – international banking competition will increase in the EMU. Only this aspect of banking competition will be discussed here.

1. The largest West European banks

As late as 1987, there were – among the ten largest credit institutions within the European Union (EU) – 5 French banks, 3 British credit institutions (another British bank followed in the eleventh place), and 2 German banks.

From 1985 to 1995, because of external and internal corporate growth in banking, this picture changed slightly. However, there were remarkably many bank mergers with insurance and trust companies, respectively.[3] With regard to external growth in the EU in the financial field, including secondary financial mediators such as insurance companies etc., it is striking that – as illustrated in Table 1 – almost only national mergers have resulted from this development. There have been relatively few international mergers.

Since 1996 there have been further mergers, for example, the Bayerische Hypo/Vereinsbank, and others are due. The rumour was spread that the Deutsche Bank and Commerzbank as well as the Bankgesellschaft Berlin (a fusion of Berliner Bank, Berlin Hypo and Landesbank Berlin) and NordLB had plans to merge; but they evaporated.

The company size of European banks and therefore their potential for supplying loans varies enormously. When looking at the top group of the 200 largest banks within the EU in Figure 1, one notices a segment of approximately 12 large credit institutions with a balance sheet total of 250 to 500 billion ecu in 1996. The joint group having a balance sheet total between 100 and 250 billion ecu might function as a potential competitor of the former one. These groups will be predestined to supply the Western European market with large loans denominated in euro; however, they will not necessarily mediate them.

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[3] See Salomon Brothers Inc. (1990).

TABLE 1

MERGERS AND ACQUISITIONS IN THE FINANCIAL SECTOR OF THE EU, 1985-1995

Target countries / EU-member countries	B	DK	D	F	GR	GB	IRL	I	L	NL	P	E
Belgium	10		2	5				1	1	2		2
Denmark		21		1								
Germany		1	22	3		3	1					1
France	4		4	77		11	1	6	2	2		
Greece				1	2	1						
Great Britain	4		8	6		380	6	2	1	2		1
Ireland						1	7					
Italy			4	3		4		22		1		
Luxembourg	3	1				1			0			1
Netherlands	3			2		2				7		
Portugal											6	2
Spain		1		5		5		2	1		3	26

Source: data from European Commission (1997).

FIGURE 1

BANKING STRUCTURE IN THE EU, 1996
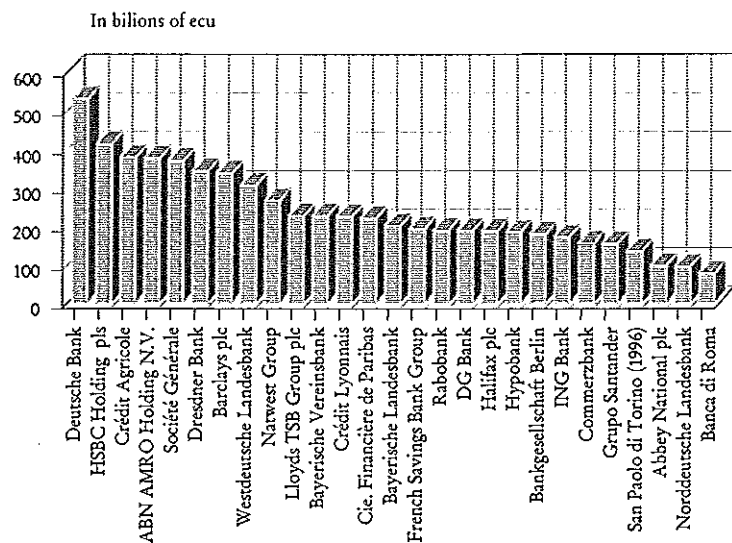(each dot represents a single bank)
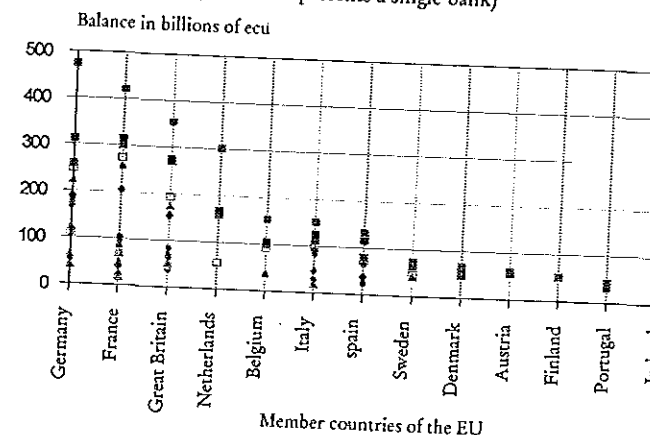
Source: Euromoney, June 1997.

The 27 largest banks in the EU (the largest European bank, the Swiss UBS is not taken into consideration) are domiciled in Germany, England and France as well as in the Netherlands, and finally also in Spain and Italy to a minor degree.

FIGURE 2

1997 BALANCES OF THE LARGEST BANKS WITHIN THE EU

Source: own calculations according to investigations at European banks.

It is striking that several western European banks have names reflecting national mergers in the (recent) past which will continue in the future; e.g. in Spain Banco Santander and Banco Central Hispano-americano plan to merge in 1999 into a European powerhouse; in France the Société Générale and Paribas intend to merge. This group of large European banks has already formed, but will be enlarged in the future by mergers of hitherto medium-sized banks; e.g. in 1999 the German LB Baden-Württemberg (a merger of Stuttgarter Landes-girokasse LG, Südwest LB and Karlsruher Landeskreditbank L-Bank) will accede to this group with a balance sheet total of approximately 220 billion ecu.

2. Inter- and intra-regional banking competition in the EU

2.1. Mergers and acquisitions

Bank fusions might occur in the form of *collusion* (the enterprises remain independent) or *mergers* (the enterprises are joined) and *acquisitions* (the enterprises are taken over). Theoretically, cases of collusion are more likely for smaller groups in less concentrated markets.[4] Weizsäcker's (1994) 'law of the small number' can be applied.[5] Yet these collusions are not stable in the long run.

In general, the motives for mergers[6] are monopolization, speculation (regarding future profits), business aspects (fiscal incentives, age of the owner of a firm that has been taken over, economies of scale).

What is central in this process is the capital gain for shareholders of the active firm or bank.

Shareholders will always profit from such a *wealth-effect*,[7] if the future cash flow of the joint company exceeds the sum of future cash flows of the two individual firms, if the risk of the joint company is reduced.

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[4] In applying the theory of games, Aiginger (1994, p. 153) has described this for a supergame (with infinite repetitions) for n equal players (identical horizontal unit costs) and the discount factor δ (inverse of discount rate) with the following rules: *collusion* (everybody has the same continuing share in the monopoly profit π/n) or *defection* of an enterprise (which receives a one-off bonus of the entire monopoly profit π at the time of defection and a competitive gain that amounts to zero thereafter).
A collusion is advantageous, if

$$\pi < (1 + \delta + \delta^2 + ...) \pi/n = \frac{1}{1-\delta} \cdot \frac{\pi}{n}$$

applies; in transforming the equation one gets

$$\delta > \frac{n-1}{n} ;$$

with $\delta = e^{-rt}$ and r = interest rate, t = time. This also means that collusions are most probable when a small n, small r and/or a short duration t are given. If, however, $\delta \sim 1$, every result could be regarded as Nash-equilibrium (cf. Jacquemin and Slade 1992, p. 442). Collusions do not have any additional advantages then.

[5] A separation of the market through innovation and imitation afterwards leads to a balanced, oligopolistic market structure (see Weizsäcker 1994, p. 110).

[6] The incentives to merge are discussed in Scherer and Ross (1990, pp. 159).

[7] See Hawawini and Swary (1990, p. 24).

The future cash flow of the joint company increases according to the

   a) information hypothesis (the acquiring firm has received exclusive information about the current undervaluation of the firm that is to be acquired);

   b) market power hypothesis (possibility of monopolization);

   c) synergy hypothesis (possibility of reducing costs after the merger);

   d) tax hypothesis (sub-case of synergy hypothesis);

   e) inefficient management hypothesis (with respect to the firm that is to be acquired).

Another main motive, which is, however, only incidentally mentioned, is the *institutional motive*. It represents an offset to legal bank supervisory restrictions on supplying large loans to individual customers (in the United States: 10% of a bank's equity capital) on the basis of corporate growth. In addition, sometimes *defensive mergers* might take place in order to avoid an acquisition by another bank, though this becomes more and more complicated the more a company is growing.[8]

In 39 empirical studies on bank mergers in the US it has been found that neither cost efficiency nor profitability had improved after a merger;[9] instead, the degree of cooperation (in opposite to a hostile takeover) plays a major role for the success of the common enterprise. This sobering result holds also true for the special group of megamergers. Traditional motives for mergers and acquisitions seem to contradict reality.[10] Surely, these American results need not be identical with European ones; nevertheless, they might provide some interesting insights into the European situation as well.

In a cluster analysis of banks in 16 selected markets and of their portfolio composition in 1978, 1981 and 1984, a number of 6 *strategic groups* were extracted whose composition had remained relatively sta-

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   [8] There seems to be a *critical size* which prevents hostile takeovers. See also Revell (1987, p. 95).
   [9] See Rhoades (1994).
   [10] For a detailed discussion see Berger and Humphrey (1992, p. 598) and Piloff and Santomero (1998, p. 75).

ble. These *strategic groups* did not depend on the company size, but rather on portfolio composition, e.g. on time deposits, commercial and industrial loans, mortgage loans and bonds.[11]

   Thus the fact of belonging to a *strategic group* where collusions are likely to happen seems to be responsible for the performance of a bank rather than efficiency differences.[12]

   Synergetic effects are more likely to be attained by banks acting in the same market segment. Thus interstate mergers did not provide substantial capital gains for the shareholders, whereas this was clearly the case for intrastate mergers. In addition, small banks can in fact compete regionally with big interstate banks as far as local market shares in deposits and credits are concerned.[13] Nevertheless, it is estimated that the number of banks will considerably decrease in the next decade.[14]

   Result: Traditional advantages of bank mergers can empirically be found in particular *a)* within a *strategic group*, and *b)* within a region (*intrastate mergers*). Interstate mergers have not been very successful in the United States. Furthermore, bank mergers might also have *institutional* (delimitations in supplying large loans) and *defensive* reasons.

2.2. *Positioning of large banks in the EU*

Smaller banks within a *strategic group* (for example, co-operative banks, but also several savings banks) are especially likely to reach efficiency advantages because of *synergetic effects*, when a company is externally growing. As far as *institutional* aspects are concerned, intra-regional mergers could be advantageous for large European banks. Inter-regional mergers are not to be ruled out; however, they do not have additional advantages for granting large loans to individual customers.

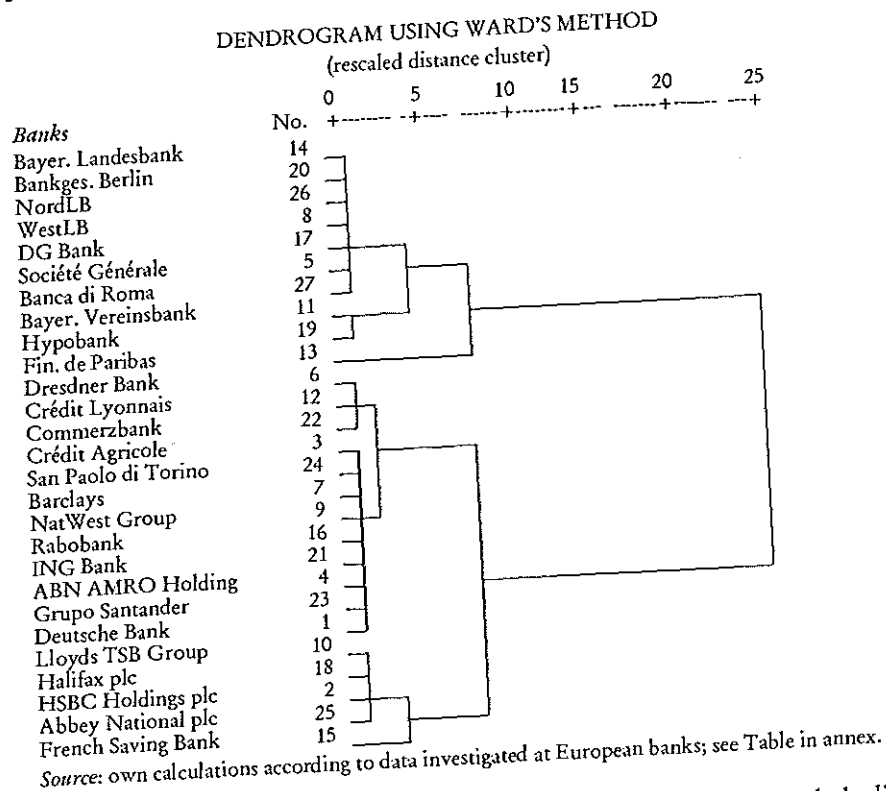   [11] See Amel and Rhoades (1987, pp. 29 ff).
   [12] See Amel and Rhoades (1987, p. 30).
   [13] See Hawawini and Swary (1990, p. 168).
   [14] This result is widely adopted in the literature, e.g. Hannan and Rhoades (1990, p. 71) and Dornbusch, Favero and Giavazzi (1998, p. 36).

In a cluster analysis,[15] the key data (compound structure of a bank's balance sheet) – interpreted as shares in the balance-sheet total of the large European banks in the EU – have been calculated with respect to their similarity when giving loans to households and enterprises (non-banks). The result is shown in Figure 3.

FIGURE 3

DENDROGRAM USING WARD'S METHOD
(rescaled distance cluster)

Source: own calculations according to data investigated at European banks; see Table in annex.

Depending on the degree of homogeneity that is demanded, different clusters result. On a very low level of homogeneity (here standardised by number 25), all banks are 'similar'.

If the homogeneity level chosen is relatively high, some *clusters* – having specific qualities – stand out:

C1: WestLB, NordLB, Bankgesellschaft Berlin and DG-Bank represent the head organisations of the mutual savings banks as well

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[15] For further details on the technique of cluster analysis and also on factor analysis cf. Backhaus *et al.* (1996, pp. 189 ff., especially p. 245).

as the cooperative banking system. Their function is to process cashless transfers and clearings within their banking system; they are also responsible for granting all those large loans that are too high for their associated banks.

Bayerische Vereinsbank and Bayerische Hypobank – which have merged in 1998 into Bayerische Hypo/Vereinsbank – form a sub-cluster that very much resembles the one formed by the mutual savings banks and the co-operative banks. The similarity between these two Bavarian banks has already for some time suggested a strategic merger.

On a slightly lower level of homogeneity the Cie. Financière de Paribas belongs to this cluster. This bank distinguishes itself by investment-banking and consulting-banking.

C2: Crédit Agricole, San Paolo di Torino, Barclays, NatWest Group, Rabobank, ING-Bank, ABN AMRO, Grupo Santander and Deutsche Bank form the largest cluster on a relatively high level of homogeneity.

Within that cluster Dresdner Bank, Crédit Lyonnais and Commerzbank form a sub-cluster with slightly different characteristics.

C3: Within another group the British banks Lloyds TSB Group, Halifax, HSBC Holding and Abbey National form a relatively uniform cluster. On a slightly lower level of homogeneity, the French Savings Bank belongs to this cluster.

In a factor analysis the standardised key data of large European banks were reduced to two factors.[16] With a multitude of mutual influencing variables (e.g. balance sheet items) of different objects (e.g. banks) the factor analysis is suitable to crystallize certain underlying independent factors, thereby reducing the number of explanatory variables. The correlation between these factors and the original variables are the *factor loadings*, presented in a Varimax-rotated factor matrix in Table 2 (and later on in Table 3). The magnitudes in absolute terms assign the different variables to factor 1 or factor 2 which, of course, have to be interpreted. The correlation between these factors and the objects leeds to the *factor values*, reproduced in Figure 4 (and

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[16] When the number of factors were reduced to three, the balance sheet items 'cash' and 'equity capital' were related to the third factor; the two remaining factors were not interpreted differently from the interpretation below.

later on in Figure 7). The 0-axes represent average values for the factors resulting from the underlying sample.

TABLE 2

FACTOR MATRIX OF THE ITEMS OF THE BALANCE SHEETS OF
WEST EUROPEAN BANKS

Items of balance sheets	Factor 1	Factor 2
Customers accounts	–0,91340	–0,31646
Deposits by banks	0,80032	0,01730
Capital	–0,61613	0,22289
Debt securities in issue	0,79494	0,23696
Cash	0,08316	0,67590
Loans and advances to banks	0,44928	–0,68159
Securities (assets)	0,28121	0,59146

These are *sources of refinancing* for banks when supplying non-banks with credits. It is proposed to interpret: *factor 1* as *liabilities* and *factor 2* as *assets*.

In Figure 4 one can notice the clusters derived in Figure 3; they represent bank groups that deviate positively or negatively from an orientation *towards liabilities* in comparison with the average of all banks that have been examined (0-axis). Evidently, in the field of loan supply, refinancing *via liabilities* have had a much greater influence than refinancing measures via assets.

In addition to the clusters in Figure 3, Figure 4 illustrates different orientations of West European banks, granting loans to non-banks, towards sources of refinancing *via assets:*

C1: The head organisations of the German mutual savings banks system as well as the head organisation of the co-operative banks system do not really differ from each other within their cluster as regards their asset orientation. The other members of this cluster, Société Générale, Banca di Roma and even more Cie. Financière de Paribas, however, are relatively asset-oriented.

C2: The orientation via liabilities of the members within the second cluster corresponds to the average of all banks that have been

examined. Their asset orientations differ, however, at least to some extent.

FIGURE 4

ORIENTATION OF BANKS WITHIN THE EMU IN 1997
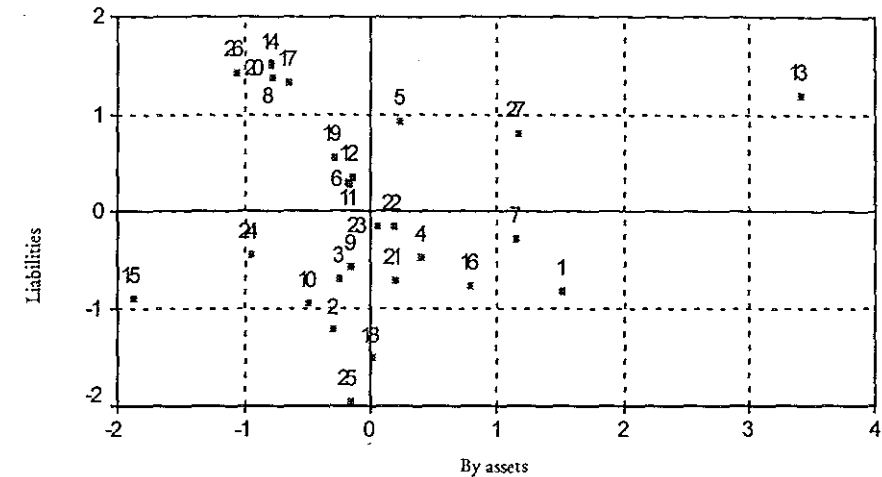
Factor analysis according to the Varimax-method with rotation.
Source of data: own investigations at West European banks.

C3: The banks within the third cluster fall behind the average of all banks that have been examined as regards both their liabilities and their asset orientation.

The above mentioned German mergers, which have already been realised or which are expected to take place, are quite plausible as intrastate mergers. However, the acquisitions of German banks outside the EU (for example, in the United States) have reasons other than those discussed so far.

2.3. *Market shares of strategic bank groups*

Within the banking system of the EU, there are three strategic groups that differ in their legal form as well as in their corporate philosophy:

– *commercial banks*: organised usually as stock corporations, but also unincorporated firms.

– *savings banks*: public credit institutions, regularly locally characterised as 'bank of the community'. Their market frontiers are therefore limited, and their main source of refinancing are savings deposits.

– *cooperative banks*: organised as a cooperative, that is, the customers, in possessing participating certificates, are the owners of the bank. Thus an idiosyncratic knowledge – this is at least the key idea of a cooperative – is employed as a corporate decision-making help. Cooperative banks are usually defined by a specific region and branch.

Commercial banks, but to a lesser extent also the head organisations of the savings banks and of the cooperative banks, are predestined for the interregional market within the EMU; savings banks and cooperative banks themselves will remain locally active. These bank groups play different roles in western European countries. Their market shares within a country's bank market differ very much, as can be seen in Figure 5.

Cooperative banks play an important role on the national bank markets in Germany, Finland, France, Italy, the Netherlands and Austria, and a less important one also in Belgium, Ireland and Spain. They have (almost) disappeared elsewhere.

Savings banks play an important role in the national bank markets, above all in Germany, France, Austria, Italy, Sweden and Spain, and a less important one in Belgium, Greece, Denmark, the Netherlands, Finland and Portugal.

Each national bank group in Figure 6 share differently within the corresponding European group because the groups vary in their market potential. Thus, within this group, the French cooperative banks have established the biggest foot held in the European market, followed by Germany, Italy and the Netherlands.

Within the European *savings banks* sector Germany holds a top position with a market share of 40%, followed by Spain (13%), Italy, Great Britain, France and Austria.

Within the group of European *commercial banks*, Great Britain has the largest market share, followed by France, Italy, Germany, the Netherlands and Belgium.

FIGURE 5

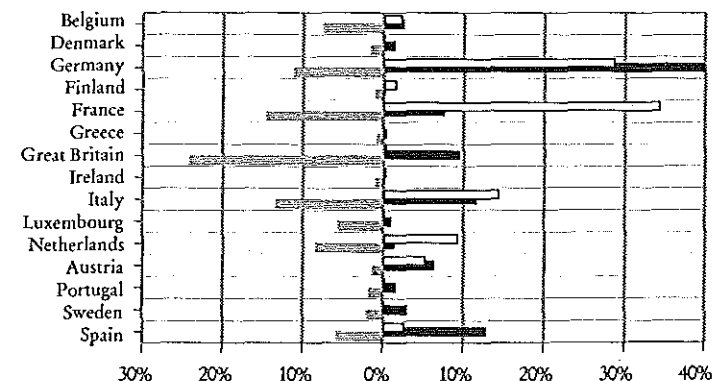MARKET SHARES OF BANKS GROUPS WITHIN A SINGLE COUNTRY
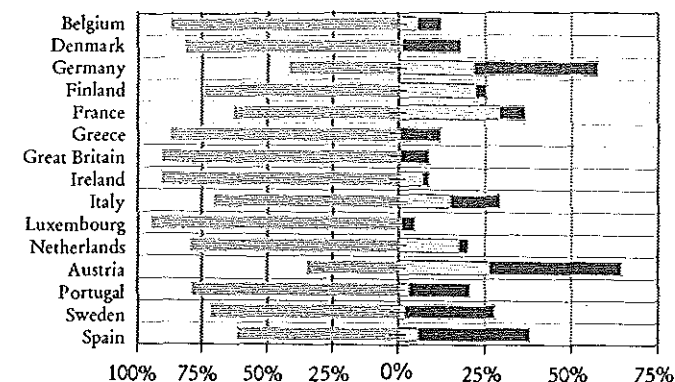
In % of the consolidated balances of:
☐ co-operatives (1996); ▤ savings banks (1996); ▨ commercial banks (1995).

Sources: own calculations according to data of reports by Europäische Sparkassenvereinigung (1996), Europäische Vereinigung der Genossenschaftsbanken (1996) and General Statistics on European Commercial Banks (1995).

FIGURE 6

MARKET SHARES OF BANKS OF A NATIONAL BANK GROUP WITHIN THE RESPECTIVE EUROPEAN BANKING GROUP

In % of the consolidated balances of:
☐ co-operatives (1996); ▤ savings banks (1996); ▨ commercial banks (1995).

Sources: own calculations according to data of reports by Europäische Sparkassenvereinigung (1996), Europäische Vereinigung der Genossenschaftsbanken (1996) and General Statistics on European Commercial Banks (1995).

This group, including the head organisations of cooperative banks and savings banks, will internationally reinforce banking competition within the EMU. This, however, as mentioned above, will only hold true for certain market segments, for example, for granting large loans.

3. Refinancing policy measures of banks within the EMU

The influence of a common monetary policy on the banking structure is primarily given through the banks' demand for monetary base.

3.1. *Principal resources for refinancing*

The banks' decision to refinance is, above all, determined by four factors which affect the relation between the banks' available reserves and their offered credit volume:[17]

– the credit supply of secondary financial intermediaries,

– their ability to adjust their asset-holdings to a restrictive monetary policy (apart from reducing their credit volume),

– their ability to induce customers to switch from reserve-carrying deposits to those which are not subjected to reserve requirements, and

– the existence of *risk-based capital requirements* (in Germany, e.g. prior to 1999 the maximum amount of credit which could be extended to a single borrower was 12,5 times the bank's equity; in the United States no more than 10% of a bank's capital can be offered to a single customer).

In order to illustrate the alternative funds for refinancing and to show the possible channels of monetary policies, a compound structure of a bank's balance sheet is presented:

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[17] See Kashyap and Stein (1993, p. 14).

Balance sheet			
cash	C_1	deposits by banks	DB
central bank	C_2	customer accounts	
loans to banks	LB	– demand deposits	D
loans to customers	CR	– other deposits ⎫	R
securities	S	securities in issue ⎭	

For the sake of simplicity, it will be assumed that bank-to-bank receivables and bank-to-bank liabilities sum up to zero (LB = DB), which is not given in reality. If one furthermore assumes $C = C_1 + C_2$, the following equation (1) results with

$$C + CR + S = D + R. \tag{1}$$

Cash-holdings of a bank consist of *working balances*, which are used to conduct the daily transactions for customers. *Working balances* are assumed here to depend upon a linear relationship with an experience coefficient c linked demand deposits D, i.e.

$$C_1 = c \cdot D. \tag{2a}$$

Claims at the central bank C_2 regularly consist of minimum reserve requirements and a liquidity reserve, which will be neglected here for the sake of simplicity.

Introducing the minimum reserve ratios m_i (the index i relates to the different balance sheet positions), leads to

$$C_2 = m_D \cdot D + m_R \cdot R + m_S \cdot S \tag{2b}$$

while all minimum reserve ratios can be assumed, of course, to be zero. Finally, it follows from equations (2a) and (2b) that

$$C = C_1 + C_2 = (c + m_D) \cdot D + m_R \cdot R + m_S \cdot S. \tag{2c}$$

Yet in equation (1) two additional conditions have to be considered:

a) a bank holds its volume of refinancing R in a certain relation to the creation of credits CR and therefore to the current accounts D. Loans are normally taken by non-banks for the purpose of immediate transactions (in form of C_l or D);

b) securities S are held by banks as liquidity funds and can be transferred into claims at the central bank on request (but only partially). This enables banks to expand their credit supply.

The European countries can be split into two groups: those in which banks refinance their credits primarily through the liability account of their balance-sheets (*German-type*), and those in which bank credits are refinanced to a considerable extent by selling securities (*Anglo-Saxon type*) out of a bank's portfolio.[18]

In the meantime some banks in Germany have begun to sell parts of their credit-receivables to independent *ABS-partnerships*, which in turn sell *asset-backed securities* to non-banks for the same amount;[19] hence banks are enabled to expand their credit supply according to the extent of disintermediation by using *ABS-partnerships*. Yet, it should be noticed that borrowing problems *outside* the banking system are not meant to be discussed here.

With *liability-side refinancing* of banks (*condition A*) a shift of part of the current account holdings ΔD_S (*idle* – sediments of – demand deposits which on the average will usually not be used, i.e. which are not urgently required by money demand) into other deposits will lead, *ceteris paribus*, to a maximum margin of credit expansion ΔCR

$$\Delta CR = \frac{(m_D + c - m_R)}{(m_D + c)} \Delta D_s . \qquad (3)$$

That is, even if the minimum reserve ratios are identical, a shifting of deposits would be worthwhile for a bank, since *working balances* only need to be kept for current accounts. Therefore, it is the cash at banks which is now important for the efficacy of monetary policy.

With *asset-side refinancing* of banks (*condition B*) the banks could sell eligible assets of ΔS to the central bank and receive the monetary base ΔC_2. Subsequently, the bank will use the monetary base in order to create additional credits ΔCR in accordance with the current accounts ΔD. In this case the maximum margin of credit expansion is given with

$$\Delta CR = \frac{1}{(m_D + c)} \Delta S . \qquad (4)$$

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[18] See Black (1996, p. 11).
[19] Deutsche Bundesbank (1997a, p. 57). Since a harmonized regulation for the disposition and embodiment of credit payments within the EU cannot be expected in the near future, the German Bundesaufsichtsamt für das Kreditwesen (BAK) has set specific requirements to the sale of credit receivables to ABS-societies (*ivi*, p. 63).

Securities *other* than those eligible for rediscount can be sold in the market (balance sheet contraction). This enables the banks to expand their credit supply and current accounts to the same extent, provided that $m_S = 0$.

The European Central Bank will pay interest on minimum reserve requirements which might be equally high than the earnings on securities held by the banks. Even in this case it is more profitable for banks to rely on securities because of the interest payments due for their liability items R.

In case of $m_S > 0$, selling securities at the market will reduce minimum reserve requirements on securities as well as on demand deposits that had originally been used to buy the now sold securities. In the following any creation of credits will freeze monetary base on demand deposits only, so that the volume of newly created credits exceeds the securities just sold. Macroeconomically, the allocation of a given monetary base is thereby optimised.

In this regard, in offering higher interest rates, banks might persuade their customers to shift their deposits to securities with fewer (or no) reserve requirements. Furthermore, banks might conduct security transactions on their own account. Both operations are extremely important for the efficiency of monetary politics and its theoretical basis.

3.2. *Refinancing measures by European banks*

European banks differ from one another not only in their entrepreneurial strategies, but also in the ways they refinance their credits; credits are refinanced both via assets (securities within the bank's portfolio) and via liabilities (deposits or debt securities in issue).

As indicators for sources of refinancing (granting loans and thereby creating demand deposits) we draw here on consolidated balance sheets of all banks within the member countries of the EU.[20] A factor analysis leads to the Varimax-rotated factor matrix in Table 3.

The monetary base of banks (cash as well as deposits at the central banks) is required both for cash payments to customers and for meeting minimum reserve requirements. The factor 'securitization'

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[20] See Borchert (1998).

now includes components of liabilities, such as (debt) securities in issue. Within this matrix, we interpret: *factor 1* as *securitization* (mainly assets) and *factor 2* as *deposits* (liabilities).

TABLE 3

FACTOR MATRIX OF COMPONENTS FOR REFINANCING

No.	Variable	Factor 1	Factor 2
1.	CDs, etc.	0,49514	−0,56247
2.	Deposits without further subdivision	−0,13540	−0,61668
3.	Capital	−0,10408	0,48212
4.	Deposits by banks	−0,83295	−0,06854
5.	Deposits in foreign currencies	−0,37137	0,27010
6.	Debt securities in issue	0,26284	0,07994
7.	Cash and balances at central banks	0,46080	0,45527
8.	Loans and advances to banks	−0,79490	0,37062
9.	Long-term assets	0,40563	−0,16583
10.	Savings accounts	0,35441	0,76553
11.	Time deposits	−0,24029	0,64260
12.	Securities	0,56373	−0,00889

Figure 7 presents the factor values for the sources of refinancing of European banks.

German and French banks refinance their credits primarily via deposits; on the other hand, British, Italian, Austrian and, above all, Dutch banks refinance their credits rather via assets. For the sake of simplicity, the other countries are neglected here. These diverse ways of refinancing banks' credits have to be taken into account by the European Central Bank in designing monetary policy.

FIGURE 7

EUROPEAN BANKS 1995/96
(main sources of refinancing)
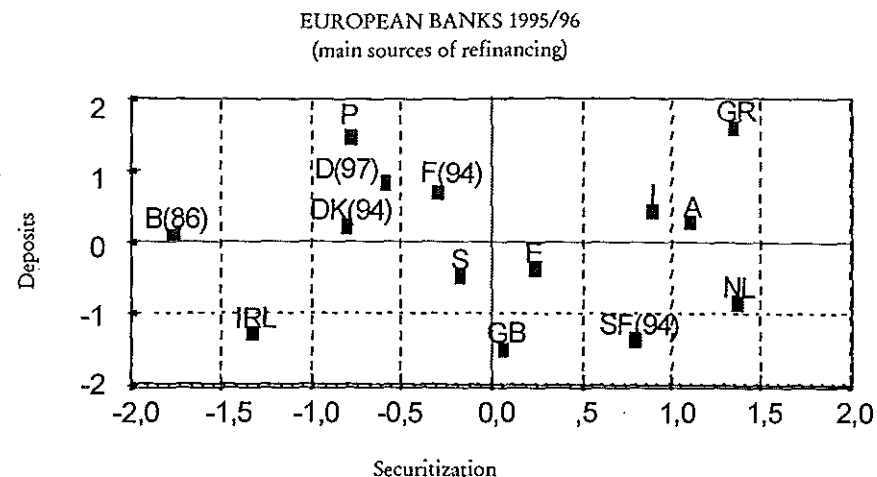
Factor analysis with rotation according to the Varimax-method.

4. New credit policy of banks within the EMU

4.1. *Requirement of monetary base in West Europe*

Not only are the banks' modes of refinancing their credits significant for the effectiveness of monetary policy, but also the requirement of a monetary base ($C = C_1 + C_2$) as well as the use of cash by non-banks (C_0) play an important role in a monetary policy that does not discriminate against anybody.

It is conspicuous that Germany needs approximately 35% of the total monetary base ($C^* = C_0 + C_1 + C_2$) of the EU.[21] This is not only due to the large German population. It is also reflected in monetary base per capita[22] – as can be seen in Figure 8 – that is higher in Germany than in any other member country of the EU, partly be-

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[21] Since the capital-share of Germany at the European Central Bank is much lower than the volume of assets assigned by the Deutsche Bundesbank, Sinn and Feist (1997, p. 9) calculated the loss of waived interest earnings in the EMU.

[22] Luxembourg's requirement of monetary base is neglected here, because the Belgian franc is accepted as legal tender in addition to the national currency.

cause the role of the DM as a substitute for the national currency in the former socialist countries in East Europe. Apart from Germany, monetary base is extensively required in Austria, the Netherlands and Spain.

FIGURE 8

CENTRAL BANK MONEY PER CAPITA IN ECU OUTSIDE
THE BANKING-SECTOR IN 1997

Cash per capita in ecu

Member countries of the European Union
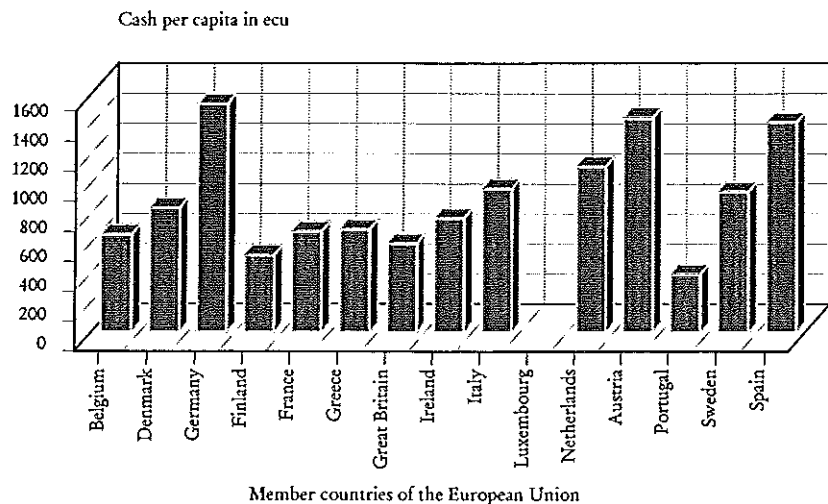
Source: own calculations according to data of the *International Financial Statistics*, July 1998.

The banks' working balances for cash payments C_1 are determined by the volume of demand deposits D, like it was assumed in equation (2a). Since some countries do not publish demand deposits separately, it is supposed here that the requirement of monetary base by non-banks C_0 is related to the banks' cash holdings C_1 with an experience coefficient a, thus

$$C_0 = a \cdot C_1; \qquad (2d)$$

the rest of a country's total monetary base C_2 serves as a reserve-fund at the central bank. Figures of monetary base at the disposal of banks $C = C_1 + C_2$ are not yet available in all member countries of the EU. Nevertheless, one can assume that the monetary base $(C_0 + C_1)$ varies within the member countries of the EU. Consequently, it will be as-

sumed here that c_i in equation (2a) is different in all member countries.

4.2. New bank-policy in the EMU

Since January 1, 1999 within the member countries of the EMU uniform minimum reserve ratios $m_D = m_R = 2\%$ are effective. Theoretically possible is a structure of

$$m_D \geq m_R \geq m_S \geq 0.$$

The cash-coefficient (of non-banks) as well as the cash-ratio of banks c_i will be different in all member countries, so that

$$c_i > c_j > 0 \quad \text{with } i \neq j.$$

When refinancing their credits by liabilities, banks are able to separate internationally their offer of additional loans according to equation (3) from the sources of refinancing,

$$\Delta CR = \frac{(m_D + c_i - m_R)}{(m_D + c_j)} \Delta D_S \cdot \qquad (3a)$$

This means that in case of a restrictive central bank policy, banks are able to create credits to the maximum extent if

– in countries with higher cash-coefficients c_i non-banks can be stimulated to shift their deposits (idle demand deposits), and subsequently

– in countries with lower cash-coefficients c_j additional loans can be offered by using the exempted monetary base.

However, such an international allocation of excess bank liquidity is limited by the volume of idle deposits (which on the average remain despite individual movements) in countries with a higher cash-coefficient. Nevertheless, it is profitable for banks to refinance their credits in countries first with higher cash-coefficients. Furthermore, with certain reservations, one has to admit that when granting large loans, banks hardly have to take special precautions against their cash-balances. This means that the cash-coefficient c will be lower for these large loans everywhere. But since these loans result in payments in all countries, the effects from equation (3a) will apply.

When banks refinance their credits *via assets* at the central bank, according to equation (4) now

$$\Delta CR = \frac{1}{(m_D + c_j)} \Delta S \qquad (4a)$$

follows, which means that by selling securities to the central bank, the banks might be in a position to offer additional loans, particularly in those countries with low cash-coefficients c_j. This holds true even if banks sell securities in the stock market.

Countries with *higher cash-coefficients* c_i are, in particular, Germany, Austria, the Netherlands and Spain. Countries with *lower cash-coefficients* c_j are, among others, Belgium, France and Great Britain.

Cross-countries business policies are suitable for large banks and their foreign branches, or for bank clubs like EBIC, ABECOR or EUROPARTNERS.

Yet, merely *locally operating banks* have one peculiarity: according to equation (3), a uniform cash-coefficient c_i is applicable. In case of a minimum reserve ratio $m_R = 0$

(3b) $\quad \Delta CR = \dfrac{m_D + c_i}{m_D + c_i} \cdot \Delta D_S \quad$ result for *refinancing via liabilities*;

on the other hand

(4b) $\quad \Delta CR = \Delta S \qquad$ for *refinancing via assets* at the stock market

holds true. Banks will be indifferent regarding their sources of refinancing as long as $m_D = m_R = m_S = 0$. If, however, $m_D > m_S \geq 0$, intraregionally acting banks, as in the EMU, prefer refinancing their credits via assets.

4.3. *Some implications of different minimum reserve requirement regulations*

If minimum reserve ratios for different positions of the balance sheet are equal,

$$m_D = m_R = r_S \geq 0,$$

a (partly) international separation of refinancing from granting loans will result, because the requirement of cash differs within the various member countries of the EMU.

If minimum reserve ratios are graduated

$$m_D > m_R \geq m_S > 0,$$

banks will prefer to refinance their credits by falling back on their assets rather than on their liabilities. This would not be the case, that is, banks will be indifferent in the sort of their refinancing, if minimum reserve ratios were graduated exactly by

$$m_D > m_R = m_S = 0.$$

The graduation of minimum reserve ratios does not affect the international separation of refinancing from supplying loans.

The mode of refinancing influences monetary policy with respect to the quantity of money mainly in the case of loans supplied by secondary financial intermediaries.[23] As long as the cash requirement differs in the member countries of the EU, it is difficult to allocate the monetary base nationally between banks. Besides, not all banks can rely on *standing lending facilities* similarly (depending on size and rating).[24] Open-market-policy transactions are conducted, on the one hand, according to the *tender method* by *standard tender* (for all banks in the same way), *fast tender* (with a limited number of participants) and, on the other hand, through *bilateral deals* with a still more reduced number of participating banks.[25]

All this influences the predictability of a monetary target. The main effect of a restrictive monetary policy consists in the signal that bank liquidity as well as the quantity of money M1 will decrease in the future.[26] The broad target money M3 – composed of liabilities of banks – is less predictable, if banks refinance their disposal of loans via assets. The *banks' liquidity* – including components of their assets – is more easily comparable with the predictability of the volume of credits.[27]

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[23] See Hesse and Braasch (1994, p. 165).
[24] See Hesse and Braasch (1995, p. 16).
[25] See Deutsche Bundesbank (1997b, p. 8).
[26] See Christiano, Eichenbaum and Evans (1998, p. 17).
[27] Scholing and Timmermann (1997) recommend a multivariate liquidity as an orientation for monetary policy. This liquidity contains all significant liabilities of a

However, each monetary interim target will be problematic, if non-banks potentially demanding bank loans finance investments on the capital market.

The share of investments – which was financed a) via bank loans and b) on the capital market, respectively – in proportion to the GDP differed considerably within the member countries of the EU during the period from 1964 until 1992, as is shown in Figure 9.[28] In this graph 'loans at banks' are the total of the bank credits to the private sector which, of course, exceed the investment credits. Financing on the 'capital market' means market capitalisation which is defined as market value of listed shares.[29] Dividing 'loans at banks' as well as figures for the 'capital market' by GDP enables a comparison of different countries. Considering a time-period of 28 years makes it feasible – with certain reservations – to conclude: the western European countries (including the US as a reference) differ in their conduct of refinancing.

FIGURE 9

FINANCIAL SOURCES FOR INVESTMENTS
IN THE MEMBER COUNTRIES OF THE EUROPEAN UNION
(as shares of GDP)
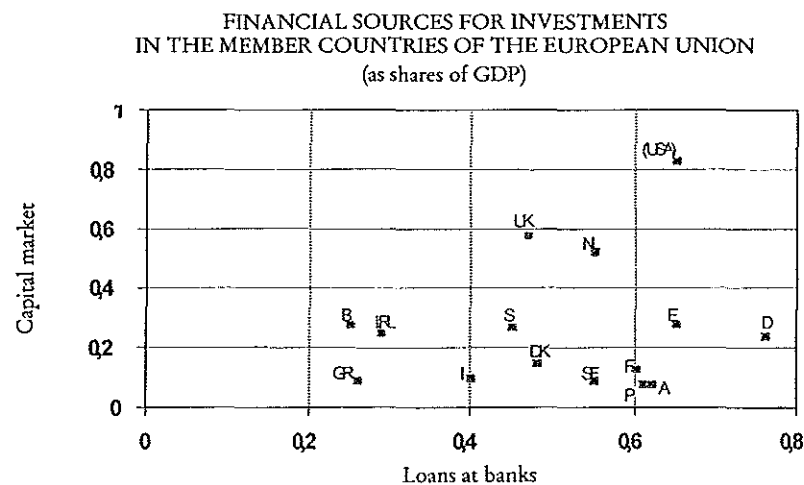
Source: Black and Moersch (1998, p. 159).

balance sheet; an expansion of that target by certain assets ("sources of refinancing of banks") could also lead to even better empirical results.

[28] See Black and Moersch (1998, p. 159).

[29] This forms, of course, only part of the refinancing on the capital market; financing by CPs are neglected here, and the actual time of market capitalization differs from the original date of financing the investments.

The development of the inflation rate could only serve appropriately as a monetary indicator if there were no shiftings in the shares of the components of refinancing, so that the circulation velocity of money $M1$ (i.e. $C_0 + D$) remained stable – not necessarily constant. The influences of stocks are ignored here, necessarily rather than permittedly.

5. Internationalisation of bank-credits

The practice of refinancing by European banks as well as the different preferences of cash by European non-banks (and thus, simultaneously, the banks' cash requirements) will shape the allocation of (large) loans within the EMU in an utterly new way. Considering the nationality of large banks within the EU (cf. Figure 2), the banks' main sources of refinancing their credits (cf. Figure 7) and the different requirements of monetary base (cf. Figure 8), one can work out, as a consequence, an unequivocal positioning of West European banks according to joint groups of countries (cf. Table 4).

TABLE 4

CASH REQUIREMENTS AND THE BANKS' SOURCES OF REFINANCING

cash	components for refinancing	
$c_i > c_m > c_j$	by assets	by liabilities
c_i	Netherlands Austria, Spain	Germany
c_m	Italy	Belgium, Denmark
c_j	Great Britain Finland, Greece	France, Portugal

As discussed above, especially for *lending* large loans, the position of Great Britain – followed by France – seems to be relatively comfortable. The *refinancing* of these credits is especially favourable in Germany and the Netherlands, independent of the nationality of the banks domiciled there. A clue for that might be the frequency of mergers and acquisitions (cf. Table 1).

Firms of the broader financial sector concentrate especially

- from Germany to France (3) and Great Britain (3),

- from France to Germany (4) and Great Britain (11),

- from Great Britain to Germany (8) and France (6), and

- from the Netherlands to France (2) and Great Britain (2).

This is how West European banks are preparing for the competition regarding the supply of large loans within the EMU, a competition that will start with the installation of the euro. The competition between European banks in other fields of business will only increase if market transparency is strengthened.

Many firms within the financial sector – banks as well as insurance companies – now want to gain prestige by belonging to the group of *global players;* however, only few of them will act universally and internationally.[30] In Germany, branches of foreign banks dominate special branches of bank businesses, such as investment-banking, consulting-banking and asset-management *inter alia.*[31] This development, however, does not influence the competition between European banks regarding retail-banking or (perhaps only indirectly) the international supply of large loans in the course of the installation of the euro.

Nevertheless, the international bank-business regarding large loans will have to endure some vacuum because of the absence of those countries who opted against the EMU.[32] The absence of Great Britain is not so important with respect to *refinancing measures by assets,* which could also be carried out by other European banks. The role of Great Britain regarding the *optimization of granting large credits,* however, might possibly be handled by banks in France, and even by those in Italy and Belgium for the time being.

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[30] See Gerke (1998, p. B3).
[31] See Maleki (1998, p. B4).
[32] As well as Denmark and Sweden, Great Britain opted against joining the EMU from the outset. Greece did not meet the convergence criteria in spring 1998. This might facilitate the effective implementation of a monetary policy that relies on the quantity of money which is chosen by the European Central Bank as a monetary target.

6. Summary

This paper connects different business cultures of large banks in various countries of the EMU with monetary policy issues of the European Central Bank. Beginning with the list of the largest commercial banks within the EU (part 1), the paper outlines their competitive potential as well as their strategic behaviour regarding possible collusions, mergers and acquisitions. A cluster analysis exhibits some banking groups according to the liability-orientation of the largest EMU-banks, and a factor analysis gives some additional information about their asset-orientation within these groups (part 2). Furthermore, the significance of the banks' groups according to their legal form and their corporate philosophy is pointed out (part 3).

The refinancing policy measures of banks within the EMU as regards asset-orientation and/or liability-orientation play an important role in determining the efficiency of monetary policy (part 4). The different cash requirements within the various European countries are especially likely to lead to totally new bank strategies regarding the supply of large loans (part 5). In fact, an internationalisation of large bank-credits will occur, calling for durable alliances between large banks within the EMU (part 6). This development is based on the installation of the euro and will – to some extent – make monetary policy more difficult.

KEY DATA OF THE CONSOLIDATED BALANCE SHEETS OF EUROPEAN BANKS

Banks 1997	Cash and balances at central bank	Loans and advances to banks	Loans and advances to customers	Domestic securities	Other assets	Total assets	Currency units (bill) bill. -10	Deposits at banks	Customer accounts	Other liabili- ties/ debt securities in issue	Capital	Other liabilities	Total liabilities
1. Deutsche Bank	20,1	162,4	518,5	298,3	43,7	1043,0	DM	286,8	438,6	152,4	133,1	32,1	1043,0
2. HSBC Holdings plc	1,80	55,98	145,98	57,15	25,49	286,39	£	23,65	178,62	16,85	16,44	50,84	286,39
3. Crédit Agricole	12,675	471,255	1287,155	520,080	223,720	2514,885	FF	451,201	1427,886	283,548	127,362	224,89	2514,885
4. ABN AMRO Holding N.V.	8,41	140,19	443,18	209,69	34,98	836,44	hfl	208,47	396,69	90,60	52,96	87,73	836,44
5. Société Générale	11,50	535,84	916,96	735,61	261,52	2461,44	FF	791,48	779,75	749,16	63,38	77,68	2461,44
6. Dresdner Bank	6,16	134,30	377,72	121,08	37,62	676,89	DM	174,62	278,58	169,03	18,96	35,69	676,89
7. Barclays	9,420	36,884	99,820	55,361	33,169	234,657	£	44,479	108,438	20,366	3,000	58,374	234,657
8. Westdeutsche Landesbank	1,81	202,47	227,97	132,33	39,22	603,80	DM	228,72	156,05	170,00	13,60	35,43	603,80
9. NatWest Group	0,91	34,62	84,48	41,07	24,34	185,40	£	28,10	89,89	17,80	7,90	41,72	185,40
10. Lloyds TSB Group plc	0,88	22,50	87,96	18,08	28,68	158,11	£	16,57	85,40	16,27	6,25	33,60	158,11
11. Bayerische Vereinsbank	2,24	65,28	312,54	49,09	20,05	449,20	DM	85,61	157,46	170,88	15,42	19,83	449,20
12. Crédit Lyonnais	9,432	225,009	784,656	300,287	179,314	1498,698	FF	391,555	607,940	312,693	9,390	177,120	1498,698
13. Cie. Financière de Paribas	41,75	84,03	322,07	740,11	280,24	1468,21	FF	312,11	130,01	786,50	53,11	186,48	1468,21
14. Bayerische Landesbank	0,80	135,97	156,82	79,67	26,20	399,46	DM	145,13	77,86	134,15	10,98	31,33	399,46
15. The French Savings Bank Group	3,54	576,24	395,25	223,63	87,91	1286,57	FF	40,39	983,79	154,82	65,69	41,91	1286,57
16. Rabobank	7,79	48,64	258,67	89,31	18,59	422,99	hfl	77,25	211,62	61,79	25,70	46,63	422,99
17. DG Bank	1,17	110,25	142,49	84,03	35,66	373,59	DM	150,25	97,13	91,88	5,98	28,34	373,59
18. Halifax plc	0,49	9,42	83,37	19,75	18,08	131,10	£	5,37	81,10	14,04	7,22	23,37	131,10
19. Hypobank	0,80	63,91	245,55	46,09	9,66	366,01	DM	57,98	115,73	165,68	9,71	16,92	366,01
20. Bank Gesellschaft Berlin	2,24	68,44	176,80	67,51	22,47	337,46	DM	98,95	124,92	94,95	8,35	10,29	337,46
21. ING Bank	3,32	52,59	239,51	67,81	20,58	383,81	hfl	93,52	188,60	43,80	27,58	30,32	383,81
22. Commerzbank	6,76	59,90	177,98	48,88	16,37	309,81	DM	89,65	143,96	46,68	14,67	14,85	309,81
23. Grupo Santander	347,96	5255,87	10896,30	7183,94	2270,57	25954,64	pesetas	6880,11	14013,64	1423,95	487,24	3149,71	25954,64
24. San Paolo di Torino (1996)	793,0	58022,0	132514,0	35158,0	35731,0	262218,0	lira (trill)	60147,0	155980,0	32575,0	9878,0	3638,0	262218,0
25. Abbey National plc	0,32	0,59	60,64	5,66	1,00	68,20	£	8,32	51,01	1,07	4,14	3,65	68,20
26. Norddeutsche Landesbank	0,27	65,49	70,26	30,55	22,95	189,51	DM	72,34	38,31	55,87	5,35	17,64	189,51
27. Banca di Roma	8551,0	28681,0	81843,0	11067,0	22358,0	152544,0	lira (trill)	52996,0	40660,0	44525,0	2675,0	11688,0	152544,0

Source: own investigations at West European banks.

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