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ALLIANCE NETWORKS IN
EUROPEAN BANKING

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INTRODUCTION

This paper analyses the structure of strategic linkages –including mergers, acquisitions, alliances, equity holdings, joint ventures, and cooperation agreements –among the 200 largest European commercial banks. Most of these linkages have occurred as strategic reactions to the current acceleration of financial integration in Europe and the resulting changes in the bases of competition in the banking industry. We distinguish between four different reasons for forming linkages: economies of scale; market power; economies of scope; political power; and the quest for strategic capabilities. By analyzing the structures of linkage formation among European banks, we can determine which of these impacts and strategic reactions are most salient.

We find two types of strategic blocks: those yielding intramarket consolidation and those providing cross-border complementarity, the latter largely among banks with different strategic capabilities. We find no cases where linkages lead to Pan-European, universal banks, i.e., banks that seek broad geographic and product-client coverage.

Various scholars have addressed the strategic reasons for linkage formation (Porter and Fuller, 1986; Contractor and Lorange, 1988), how to make these linkages work (Harrigan, 1985; Hamel, Doz and Prahalad, 1989), and the transitional role of linkages as boundaries between firms shift (Kogut, 1991a). Others have examined the structure and strategic role of networks of linkages, either in general (Thorelli, 1986, Jarillo, 1987) or within a specific industry (Walker, 1988; Kogut, Shan and Walker, 1991; Nohria and García-Pont, 1991).

In the European banking industry, we identify a number of strategic blocks –groups of firms within an industry that are more densely linked to each other than to other firms in the industry (1). The logic underlying the formation of these blocks is explained in terms of the challenge to existing strategic resources, and the new opportunities for the achievement of economies of scale and scope created by European financial integration. These blocks are less cohesive than those found in the automobile industry (Nohria and García-Pont, 1991) owing to the differences in the structure of the industry, the intrinsic difficulty of establishing commitment among financial institutions, and regulations that seek to maintain national control of banking given the central role that the financial services industry plays in a country's economy.

The structure of the essay is as follows. We first introduce briefly the changes affecting the European banking sector as a consequence of European integration. Second, based on previous studies, we argue that while pure economies of scale do not appear to be a significant factor in banking, there is certain evidence of the existence of market power at the regional level. Further, since banking spans many specific businesses or segments, economies of scope achieved through sharing of strategic resources are important. Based on these considerations, we analyze the different linkages that can be formed among banking institutions and predict which types of strategic blocks will be formed. Fourth, we describe the data and methodology. Finally, we present the results and discuss their implications for further research.

THE EUROPEAN BANKING INDUSTRY

Banking in Europe represents an ideal laboratory for studying industry and strategic change. The regulatory changes leading up to 1992 have shaken what was a competitive equilibrium within each country by expanding the relevant market definition, and thus modifying the structure of the overall industry (2). This European shakeup is both a threat in that it opens a bank's home market to EC competitors, and an opportunity in that it allows a bank to expand into other EC markets (3). It also allows much greater freedom for product diversification as well as focus both within and across countries. Banks can now offer such previously separate financial services as insurance and securities underwriting. They can also achieve a greater scale and still concentrate on a small set of products.

Deregulating the scope of the firm, however, does not imply that firms will automatically expand along product and geographical dimensions. The contestability of a product-market-client segment within a country (4) will be determined by the existence of economies of scale or density (5) in that segment, or economies of scope that derive from specific strategic capabilities applicable in more than one segment.

With the industry-wide changes associated with 1992, some capabilities become obsolete, while others become more important, providing new opportunities for the achievement of economies of scale and scope. For example, vertical integration from funding to lending will become less relevant with the development of European-wide wholesale markets for funds. On the other hand, cross-border scope for firms engaged in merger and acquisition activity has become much more relevant given the potential continental and global integration of industry.

In the following section we further develop these changes, discussing their impact on the potential for and importance of economies of scale, market power, political power, economies of scope, and specific strategic capabilities; and the role of these economies in the formation of linkages.

REASONS FOR LINKAGE FORMATION IN EUROPEAN BANKING

Economies of scale, market power, and political power

The quest for economies of scale at a corporate level are an unlikely explanation for the formation of linkages among European banks. Most studies using U.S. data have not found economies of scale for banks beyond \$100 M in assets (Gilbert, 1984; Gilligan and

Smirlock, 1984; Bergert *et al.*, 1987; Mester, 1987). Furthermore, there is little evidence of gains from market power within banking (Gual and Vives, 1991; Smirlock, 1985).

However, scale within specific segments is more likely to convey advantages. The high density of the branch network in most European countries, for example, combined with a significant customer loyalty, appears to provide a significant entry barrier (Neven, 1990), thus increasing the possibility of obtaining market power through strategic linkages.

Size may also give rise to political or institutional power, allowing a large bank within a given jurisdiction to influence its regulation or attract explicit or implicit transfers from the state. Banking is recognized to be at the center of economic activity, not only as mediator of financial flows (Burt, 1980, 1988), but also in personal networks with industry managers (Burt, 1980; Mintz and Schwartz, 1985), which have been credited with shaping the economic activity of a country (Mintz and Schwartz, 1985; Zysman, 1983). It follows that as national governments lose some of their economic powers to Brussels within the EC, and also some of their power relative to firms operating within their boundaries, they will want strong players in the European financial system under their institutional control.

Economies of Scope

Economies of scope are a more likely explanation for the formation of linkages. Banks with complementary positions in geographic, product, or client segments, and with the associated complementary capabilities, could in principle more easily combine or associate along one or more of these dimensions with the deregulation and integration of European banking markets. However, empirical studies provide at best conflicting support for the existence of economies of scope in the banking business.

Traditional economic literature refers to economies of scope as those enjoyed by multiproduct firms. Murray and White (1983), Gilligan *et al.* (1984) and Gilligan and Smirlock (1984) find support for the existence of economies of scope within the traditional banking business. In studies of the savings and loans (LeCompte and Smith, 1985; Mester, 1987), no general significance of cost complementarities are found, while Goldberg *et al.* (1991) find that the existence of multiproduct economies in banking cannot be rejected. These might be due to economies of scope across segments resulting from economies of scale or strategic capabilities that relate to support activities, *e.g.*, financial engineering capabilities or back-office activities that support different product market segments at the same time.

Empirical studies focusing on the existence of economies of scope between consumer and investment banking activities report conflicting results. Saunders and Smirlock (1987) found no significant market reaction to bank entry into discount brokerage activities in the U.S. Murray and White (1983), studying British Columbia Credit Unions, found weak evidence of cost complementarity between investment and loan activity; however, the estimates were small and statistically insignificant, which they attributed to the small sample size.

In Europe, London's Big Bang allowed consumer banks to engage in investment banking activities. The outcome of this deregulation was not a complete success story for British banks. The press reported unsuccessful results for T.S.B., National Westminster, and other U.K. banks, while Royal Bank of Scotland's acquisition of Charterhouse proved to be one of the most successful marriages (*Financial Times*, 1990; *Institutional Investor*, 1989a).

Strategic capabilities

Economies of scale, market power, political power, and economies of scope are based largely on the volume of a bank's outputs –its position in particular geographic-product-client segments. These benefits can also be modeled from an internal perspective, viewing a firm as a bundle of sticky and path-dependent strategic resources, assets and capabilities that allow the firm to perform its activities more or less efficiently than others (Penrose, 1959; Rumelt, 1984; Wernerfelt, 1984; Barney, 1986) (6). While this perspective is not incompatible with the economies of scale, scope and market power arguments, it highlights the unique, firm-specific characteristics that provide competitive advantage. Nohria and García-Pont (1991) argued that the establishment of different linkages could be thought of as a response to imperfections in the market for strategic capabilities.

The development of strategic capabilities within the European banking industry reflects a diverse history of strongly regulated national oligopolies with a limited cross-border flow of financial services (7). Regulation has limited not only the range of geographic-product-client segments in which a firm can compete, but also in many cases the basis of competition in these segments. In some countries, notably Spain, Italy and, to some extent, France, the financial system has been centered in a commercial banking system characterized by limited price competition, very extensive branch networks, and a relatively underdeveloped investment capability given mandated investment in government bonds. In other markets, notably Germany, banks have also played a central role, although facing bigger internal challenges given less restrictive regulation regarding the number and diversity of banks, as well as greater external competition caused by the access of large corporations to off-shore financing.

On average, local institutions are better endowed in resources to compete in their traditional businesses within their respective countries. Local banks are likely to excel in doing whatever they have been doing in their own markets. As explained by Tschoegl (1987), the process of learning the local environment does take time in the banking industry. Entering new markets with their existing product might require a certain localization process, for which local banks might be better positioned. Extending their activities with new products in their “old” markets might demand certain product-specific capabilities that they might not have developed. The duality between strategic capabilities and the different product-client-geographic segments suggests that linkages can be seen also as a response to an imperfect market for access to different segments. It is likely that when managers think of acquiring or developing strategic resources, they consider the segments that can be accessed with them as well as the resources themselves.

Moreover, financial products can be classified according to the need for density and physical proximity to the customer. The degree of localization will depend on both the proximity demand and on whether the financial behavior of the potential client is different from that of clients in the country of origin. Yet both issues encourage firms to gain access to these newly needed capabilities. The complementarity of strategic capabilities is not restricted to the partners' geographical location. Pooling the respective capabilities of the partners might provide them with a competitive advantage to extend their activities to third countries.

It is also quite possible that managerial decisions are not based on an explicit economic rationale. Mimeticism may be a prime reason for linkage formation (Dimaggio and Powell, 1983; Westney, 1987). This imitation can be the result of oligopolistic rivalry (García-Pont and Nohria, 1991), or it may simply be that firms are uncertain as to which

strategies will prevail, but they want to avoid being left behind. Even though the decision-makers might not see a clear rationale for linkage formation, they know that if they imitate the leader, they increase the possibility of maintaining the status quo (*Institutional Investor*, 1987).

Economies of scale and scope, market power, complementary strategic capabilities, consolidation and mimetism have been suggested as motivations for linkage formation. We do not pretend here to relate each link unequivocally to a specific reason. A mixture of all will certainly be present. It is this combination of different motivations that will shape both the linkage's form and the overall structure of the network.

EXPECTATIONS REGARDING LINKAGES AND STRATEGIC BLOCKS

We classify linkages among European banks on two dimensions:

- a. whether the firms involved are based in the same country;
- b. the extent to which the linkage involves specific assets that create interdependence between the partners.

The distinction between within and across-border linkages is crucial since the most important aspect of the changes in the industry is the opening to foreign competition. With the establishment of a single banking license, any institution in an EC country can undertake the same activities it performs at home in any other EC country. Cross-border linkages are attempts to exploit cross-border economies of scope and/or complementary capabilities, while within-country linkages can be seen as efforts on the part of the partners to reinforce their local position in order to meet this new competition.

The second dimension of classification is the extent to which the partners invest in linkage-specific assets, creating strategic interdependence between the partners. Asset specificity refers to the degree to which partners in a transaction make investments that cannot be redeployed, and that only have value within the specific relationship. In banking, asset specificity takes the form of joint operations, specialized teams of people in joint processes, or integrated information systems. Asset specificity has been identified as the most relevant characteristic of a transaction (Williamson, 1979; Klein, Crawford and Alchian, 1978; Grossman and Hart, 1986), preventing reversibility. Asset specificity reduces the likelihood of ex-post opportunism, creating a mutual hostage position which reduces the incentive to shirk and increases the stability of the linkage (Kogut, 1988).

When specific assets are not created, the two organizations merely agree to collaborate. They may, for example, establish preferential treatment for cross-border (or cross-business) transactions, with no need for further integration. With such agreements, the partners can learn about each other, obtaining options for further collaboration (Kogut, 1991a). Nevertheless, the partners are also able to reverse the linkage, given minimal interdependency, making these relationships unstable and decreasing the incentive for further cooperation

Potential block structure

The combination of these two dimensions produces four different cells (see Table 1). The different kinds of linkages found in the grid are discussed below.

Table 1. The linkage grid

	Within Borders	Across Borders
High asset specificity, irreversible	Consolidation Increase institutional leverage Expand geographical scope	Geographical scope Acquire Strategic resources Domination Institutional considerations
Low asset specificity, reversible	Geographical scope	Geographical scope Co-specialization

Geographical expansion by large banks will in general require linkages with small local banks, given the difficulty of greenfield entrance (Neven, 1990). In order to implement a coordinated European expansion, these large banks need a hierarchical control over their organizational foothold in different countries. Further, given the dependence this implies on local units, the large bank cannot allow others to gain control of them. Thus, cross-border linkages between small and big banks will be hierarchical in nature, mainly acquisitions. The resulting blocks will display high centrality, with a large bank at the center and the acquired institutions on the periphery.

Deutsche Bank is a clear example. It acquired Banco Comercial Transatlantico in Spain, Morgan Grenfell in the UK, Banca d'America e d'Italia in Italy, Vienna-based private bank Antoni Haacker, and MDM in Portugal. As Deutsche Bank's sources said, establishing the largest European branch network should allow Deutsche to retain a larger proportion of corporate clients' international business than rival banks. Moreover, it can sell services of one subsidiary in one country to clients of another Deutsche-owned firm elsewhere, besides being able to handle the client's day-to-day financial needs –such as payments and transfers– more efficiently and gain access to market intelligence (*Institutional Investor*, June 1989b).

An alternative to hierarchically dominated European expansion is the establishment of cross-border «reversible» linkages among large institutions. Firms see the need to gain access to strategic resources accumulated in different competitive and regulatory settings. The small resource cost of these «reversible» cross-border linkages among large firms allows them to increase their geographical coverage significantly by linking with several firms from different countries. Yet they are also *de facto* limiting it by agreeing not to compete aggressively with their partners. A bank's business might increase by servicing its partner's customers in its home country, and to a lesser extent by being able to offer services abroad to its own home customers. These linkages are likely to generate complementary blocks among

small numbers of large institutions. However, the lack of asset specificity and interdependence will make the blocks unstable. These blocks will show a high cross-border geographical complementarity and low overall centrality, because the low organizational commitment allows for more symmetrical relationships.

Within-border linkages among large banks pose a different problem. We have already argued that there is no definitive empirical evidence of economies of scale and scope in banking. However, in order for two partners in a linkage to benefit from capability-sharing, a substantial degree of integration is required. To the extent that within-border linkages among large banks seek greater influence over the local regulatory framework and provide a better bargaining situation for the national government in Brussels, integration will also be required. It is widely recognized that several mergers among large national banks were encouraged by the national governments (8).

The total number of linkages generated by large banks, though, will be limited for two reasons. First, these cross-border linkages obey a law of exclusivity since any alternative linkage within the partner's country will come into conflict with the partner's interest. Second, the substantial organizational turmoil associated with integrating large institutions will prevent them from generating more linkages. Thus, the merged banks are likely to form isolated blocks in the linkage network.

Established niche banks are unlikely to link with large ones in their home country. They have already been successful competing against them and would not gain in strategic capabilities by establishing linkages with them. These small institutions are likely to expand their geographical and product scope by establishing low asset specificity linkages with other European equals. In the same way as larger institutions, they are likely to increase their international product offerings to home customers through these deals, either in their current business or in different ones.

Finally, we expect few new «reversible» linkages –loose agreements between firms that involve neither asset specificity nor joint operations– within borders among commercial banks. If we assume that there was a competitive equilibrium among commercial institutions within each different financial system before the EC 92 announcement, those linkages would have already been established. However, product deregulation implies the possibility of offering other products locally. Local banks can buy in these markets through the acquisition of emergent small investment banks or securities houses in the most recently deregulated markets, such as Spain or Italy, to expand their home product scope.

A special case within banking services are savings banks. Due to their special institutional ownership, they are limited in their cooperative strategy mainly to other savings banks or similar institutions. On the one hand, deregulation affects them more than other institutions in that they have been very much restricted in their geographical coverage within regions in their own country. This implies a need to restructure, which causes a wave of within-country mergers among savings banks. Power considerations might lead them to look for their equals when considering merger partners. We expect blocks formed by the merger of local savings banks. Political power reasons might lead savings banks to merge with their prior local competitors, given their dependency on local governments and the interest of those governments in having influence in the financial world within their domain and within their country.

On the other hand, savings institutions are subject to the same international expansion considerations as banks. Large savings banks that have already extended their

operations to non-traditional retail business products will be preferred business partners for foreign savings banks. Thus, we would expect to find cross-border blocks formed by large savings banks or their higher level national groupings to form a European platform for non-traditional retail banking business.

DATA AND METHODOLOGY

The data for this study are 309 strategic linkages between pairs of banks and savings banks and involving the 200 largest European banks (9), entered into in the period between 1980 and the first half of 1991. Each observation includes the names of the banks, their country of origin, the type of linkage (*e.g.*, merger, acquisition, majority equity holding, cross-equity holding, minority equity holdings, joint ventures, distribution agreement) and the date of formation of the alliance (10).

Distribution of Linkages

Given that the stronger linkages –mergers, acquisitions, majority equity holdings and minority cross-equity agreements– generally involve high organization costs and are not readily reversible, we infer that they also involve business level cooperation with asset specificity. Thus, the linkages that we classified as involving high interdependence and asset specificity were: mergers, acquisitions, majority equity holdings and minority cross-equity agreements. We classified 50% and minority equity holdings at an intermediate level; and at a low level of asset specificity and interdependence we included joint ventures, cross equity in subsidiaries, and agreements. The distribution of linkages in terms of the size of the banks involved, whether they are within or across borders, and their strength is shown in Table 2.

Table 2. Three-way classification of the linkages

Size of the partners	Within border linkages				Across-border linkages				Total
	Small Small	Large Small	Large Large	Subtotal	Small Small	Large Small	Large Large	Subtotal	
Strong	140	61	20	221	7	75	4	86	307
Medium	3	17	18	38	1	40	21	62	100
Weak	0	4		48	1	16	22	39	47
Total	143	82	42	267	9	131	47	187	454

Most linkages are of a strong variety (68%), and the majority of these strong linkages are concentrated within-border (86 vs. 221). The majority of weak linkages, in contrast, are concentrated across borders (39 vs. 8). If we focus on the linkages between small firms, we see that 94% are within borders, and virtually all of them (98 %) are strong linkages, as could be expected from the consolidation process going on in many countries.

A large proportion of the within-border strong linkages (82) are between firms of unequal size. They are mainly acquisitions by large banks trying to extend their home distribution network (45 of them), and some mergers of unequal size within the Scandinavian region. The medium-strength linkages are mainly previously existing small equity holdings among Italian institutions, and small increases in these holdings.

Across borders, 57% of the relationships between a large firm and a small one are strong linkages, responding to geographical expansion on the side of the large banks. Most of the medium-strength agreements are small equity holdings that represent a foothold in a specific foreign country by the large firm. The cross-border weak linkages between a small and a large institution are mainly agreements that involve savings banks with other medium-sized foreign institutions.

The within-border relationships between large banks are concentrated in strong links –mainly mergers. The medium-strength and weak linkages, in contrast, tend to be previously existing shareholdings and agreements, mainly in Italy and Germany. Across borders, the relationships between large banks are concentrated in medium and low-strength ties (43 vs. 4), the strong ones being the cross-equity agreements between Royal Bank of Scotland and Banco de Santander, and the announced but failed cross-equity agreements between Credit Lyonnais and Commerzbank, and Credit Lyonnais and Banco Hispano Americano.

Network Analysis

The main argument in this paper is that the formation of strategic linkages follows a certain competitive logic. We used network analysis to study the structure of linkages among European banks (11).

A central problem in network analysis is to define the boundaries of the network. Omission of pertinent elements or an arbitrary delineation of boundaries can produce misleading results (Barnes, 1979). We were interested in identifying the different cooperative structures of the relevant banks in the European framework. As noted above, we restricted the study to the cooperative arrangements involving the 200 largest European banks. Of the 359 references to linkages involving these 200 banks, 123 references (35%) involved only these banks. Eliminating multiplex relationships, there were 74 paired relations involving 107 banks. These 107 firms were used to construct the adjacency matrix (12).

Following Nohria and García-Pont (1991), we rated the reversibility of the linkages according to the criteria that appear in Table 3 and used a symmetric adjacency matrix with $A_{ij}=A_{ji}$ representing the strength of the linkage between firm i and firm j . When firms had multiple linkages we choose A_{ij} to represent the strongest linkage between them. The diagonal cell in the matrix was assigned a value of 10, so that the strongest relationship is that of the firm with itself. The resulting matrix was the input for the network analysis. To identify the strategic block structure (White, Boorman and Breiger, 1976; Arabie, Boorman and Levitt, 1979), we used the CONCOR algorithm (Breiger, Boorman and Arabie, 1975) (13).

Table 3. Rating of the strength of the relationship

Type of link		Strength of relationship
Merger, Acquisitions	Strong	9
Majority equity holdings		8
Minority cross-equity holdings		7
50% Equity holdings		6
Minority equity holdings 21-50 %	Moderate	5
Minority equity holdings 0-20 %		4
Joint ventures		3
Cross equity in subsidiaries		2
Agreements and distribution agreements	Weak	1

Out of the 107 firms included in the network we obtained ten clusters. The density matrix (see Table 4) shows that eight of the diagonal densities were significant. Thus, from a network perspective we found eight «strategic blocks» with a higher density of links among them than with other members of the network. The overall density of the matrix was 0.013, lower than that in the world automobile industry (Nohria and García-Pont, 1991). No off-diagonal density was significant, choosing as a cut off-point the density of block 9. This supports the existence of strategic blocks in the linkage network. To test how robust these results were to our rating of the strength of the linkages, we also ran the algorithm with a binary matrix (1 indicating the presence of tie, and 0 indicating its absence). The results of this blockmodel closely resembled those of Table 2 (89% of the firms were classified in the same block).

Table 4. Density matrix

BLOCK	1	2	3	4	5	6	7	8	9	10
1	0.205									
2		0.357								
3			0.250							
4				0.400						
5					0.381					
6						0.306				
7							0.400			
8								0.400		
9									0.066	
10										0.000

FREEMAN'S GRAPH CENTRALIZATION

0.356 0.32 0.487 0.44 0.494 0.281 1 0.417 NA N.A.

COMPLEMENTARITY INDEX

0.3974 0.0714 0.4815 0.6111 0.2857 0.5556 0.12 0.3056 NA NA

BLOCK CHARACTERISTICS

Following the overall clustering, we sought to characterize the structure of the relationships within each of the strategic blocks in terms of the following network parameters: the overall density of the different strategic blocks, Freeman's graph centralization (Freeman, 1979) for the subgraph formed by the members of each strategic block, and the extent to which the block was pooling or complementary (Nohria and García-Pont, 1991).

Density is a measure of the relative number of links established among the block's firms relative to the total number possible. It indicates the total cohesiveness of the linkage structure of the block. Freeman's graph centralization represents the extent to which there is one single actor that is more central in the network relative to the other actors. It takes its highest measure for a star or wheel-like graph (Freeman, 1979). As indicators of the prominence of individual actors in the block we used the relative centrality and relative betweenness of the individual firms. The former is the proportion of actors in the subgraph that have links with the individual actor. The latter is the proportion with which an actor falls between pairs of other actors on the shortest path between them. Both measures have been linked with power and prominence positions in a network (Knoke and Burt, 1983)

The third characteristic that identified the blocks was whether they were pooling or complementary (Nohria and García-Pont, 1991). A pure pooling block is one in which all the firms have the same strategic resources. A pure complementary block is one in which all the actors have different strategic resources.

As a proxy for whether firms have the same or different resources, we used the country of origin of the firm. The "complementarity index" (for a description of this index see Nohria and García-Pont, 1991) has a value of 1 if all the firms in a block are from different countries (an ideal complementary block) and zero if all the firms in a block are based in the same country and are all linked together (a pooling block). The index applies only to non-zero blocks. (Appendix A, available from the authors, shows the composition of the individual blocks).

Block 1 is surprisingly large in scope. It is mainly a complementary block at the international level, involving firms from the five bigger countries in the EC. The most prominent actors in the block are Hambros, IBSPT and Bayerische Vereinsbank. Within the block, Credit Agricole, CREDIOP, Bayerische Vereinsbank and Hambros are closely linked together. The linkages among these players are primarily agreements and small equity holdings, except for the IBSPT-CREDIOP links, in which it is expected that IBSPT will acquire CREDIOP in the near future. Banco Bilbao Vizcaya (BBV) has only one link, a minority equity holding in Hambros, as do all the other major actors in the block (14). Bayerische Vereinsbank brings into the block Caisse Centrale de Banques Populaires and Banca Popolare di Novara, and IBSPT has a small equity holding in Suez. The links with Hambros are of a different character; they are all based on small equity holdings of commercial banks in the London-based institution. Freeman's graph centralization for the block is 0.393, showing the dual star-complete graph structure of the block. The stated objective of the linkages involving CREDIOP, Bayerische Vereinsbank and Credit Agricole was to extend the geographical scope of their commercial banking activities by cooperating in Italy, Germany, France, and the UK.

The second block is made of eight Italian institutions. This is a consolidating block, in which Italian institutions seek to strengthen their position within their local market. Most

of the relationships in this block date from before 1985, decreasing their value as responses to strategic environmental changes. Those links give Istituto Mobiliare Italiano the most prominent position in the block. Credito Romagnolo –controlled by the De Benedetti Group – Banco di Napoli and Istituto Bancario San Paolo di Torino all have small stakes in IMI. The most important ones have extended their European coverage while consolidating their positions in Italy: Banca Nazionale del Lavoro acquired Hesse Newman, a small German institution; while CARIPLO pursued an alliance with Banco de Santander that did not work and acquired a small French bank.

The third block is more of a complementary one in which banks from six countries are represented (complementarity index =0.4851). It has two central actors, Credito Italiano and Banca Commerciale Italiana (COMIT). Between them, they have linkages with CIC and Banca Nazionale dell'Agricoltura, Paribas and Warburg. Mediobanca, the third most prominent actor is linked with COMIT, Credito Italiano and BHF. Group Bruxelles Lambert is in the group because of a minority equity holding of Paribas.

The fourth block is a complementary one at the international level. It involves firms from five different countries. Four of the banks are closely linked together (ABN, AMRO, Barclays and Hypobank): they are all members of ABECOR, a consortium bank based in London. Hypobank and Rabobank have minority equity holdings in Banco Popular. It is worth noting the strategy of Banco Popular, one of the most profitable European banks. Long considered a candidate for a merger, it has chosen to preserve its identity and establish cross-border linkages to increase its international exposure, while at the same time precluding hostile takeovers. It also has a joint venture with Allianz, the German insurance company, which is also a small shareholder in the bank, to distribute its products in Spain.

The fifth block is a supranational pooling block. Even though five countries are present in this block they all belong to the Scandinavian region. The banks in the block are among the biggest in Scandinavia. The intention of the alliance seems to be to extend the geographical coverage in each of the banks throughout the Nordic region, while at the same time pooling resources to increase the international presence of the members of the block.

The sixth block includes the banks related to the Europartners group, either directly (Credit Lyonnais, Banco Hispano Americano, Commerzbank and Banco di Roma) or indirectly (Dresdner, Banque Nationale de Paris, Cassa di Risparmio di Roma and Banco Central). This block represents the first attempt to form a pan-European network of commercial banks. However, some of the relationships are being called into question. The recent mergers between Banco Central and Banco Hispano Americano, and Banco di Roma and Cassa di Risparmio di Roma call for a reconsideration of the role of these new entities in the block and the expansion of Credit Lyonnais. The presence of Dresdner Bank in the block is explained by a minority equity holding in Commerzbank. BNP is brought into the block because of a cross-equity arrangement with Dresdner bank.

Block 7 is the result of long-standing elements in the structure of the German financial system. Deutsche Girozentrale Deutsche Kommunalbank is the coordinating institution of the Girozentrale banks. These linkages are mere reinforcements of existing relationships.

Block 8 is a loose alliance of savings banks. Besides the merger of two of the biggest Spanish savings banks (Caixa de Pensiones and Caja de Barcelona), the linking firm is the Ecureuil group, which is the group of French savings banks controlled by the state.

Block 9 is not a cohesive block. The linkages are between pairs of firms in the block, with no further connection with the other members of the block. We shall comment on the most important arrangements between the firms in this block. First, the linkage between Banco de Santander and Royal Bank of Scotland. In itself, this is a geographically complementary arrangement between two institutions.

Both banks agreed to minority equity cross-holdings, and Santander's German and Belgian subsidiaries became jointly owned (50:50). The agreement was established to benefit from geographical complementarity and join forces to develop business in continental Europe, in which neither had a strong presence. Furthermore, Banco de Santander gained access to the know-how of a bank that was used to dealing with a more competitive financial system. After the alliance was formed, they acquired a significant equity share in a Portuguese institution. Both firms have acquired significant holdings in U.S. institutions. Whether their U.S. strategies come together in the future is an issue that might be indicative of the scope of their alliance.

Three mergers are found in this block. Postbank and Nederlandsche Middenstandsbank merged, creating NMB Postbank in the Netherlands. Two Danish banks, Copenhagen Handelsbanken and den Danske Bank, merged to form the second largest Nordic bank. And following the consolidation process of the Nordic banking industry, PK Banken acquired Nord Banken in Sweden.

Another interesting cross-border alliance is the merger of Standard and Charter's and Westdeutsche Landesbank's commercial and merchant banking operations in Europe. Jointly with the alliance between Standard Chartered and Banca Popolare di Verona, it creates a small complementary block covering three different countries.

Block 10 is a non-block that includes all those firms within the sample that do not have alliances with any other members in the sample, but have established ties with other financial institutions. To a large extent it is the result of our arbitrary limitation of the sample to large banks. Deutsche Bank, for example, which is in Block 10, has a strategy of international expansion via the acquisition of small local institutions: Banco Comercial Transatlántico in Spain, Banca d'America d'Italia in Italy, a fund management firm in Portugal, a Dutch brokerage firm, a Vienna-based private bank (Antoni Haacker), and Morgan Grenfell in the U.K. Of the 59 linkages that the firms in this block have established, 35 are acquisitions of smaller institutions.

Summary of results

The distribution of densities in Table 3 clearly shows the existence of blocks in the European banking industry. These blocks, as described in the previous section, would not surprise an industry expert. After the announcement of the changes in competitive regulation, there was much discussion about the possibility of cross-border mergers.

We argued that the potential instability of strategic linkages among banks would favor a hierarchical structure. This is confirmed by the finding that in the larger database including 717 linkages among European financial services firms, sixty seven percent are either mergers, acquisitions or majority equity holdings.

Because of the nature of the sample, most blocks were complementary in nature. Given institutional and legal considerations, it is difficult to form a local pooling block. However, two of the blocks that emerge have a pooling nature. They are both made up of firms from only one country, Italy and Germany respectively, that seek to consolidate or reinforce their local position. Block 5, including only Scandinavian firms, can also be considered to be pooling in nature. By establishing ties among each other, they are covering the whole Scandinavian region and pooling forces to act in the EC.

We also found large blocks which were complementary in geographical terms: blocks 1, 3, 4 and 6. The first two are quite complicated; they include major players from different countries and, even though both blocks have dominant players, it is not clear what is the nature of the cooperative behavior of the players in the block. In both of these blocks there is a certain duplication in the banks' country of origin, as reflected by a low complementarity index for blocks covering all major countries in Europe. Block 8 presents a similar picture, even though the geographical complementarity between the Spanish savings banks might have justified their inclusion in the same block. The recent abolition of geographical limits for savings banks within Spain might make these ties redundant. The links in these blocks are mainly weak and do not imply a high degree of integration among the firms involved. Thus, we would suggest that these blocks are inherently unstable and predict that future developments will fragment them.

In contrast, blocks 2 and 6 have higher complementarity indexes, and the duplication of banks from the same country in each block is due mainly to local mergers. Which brings us to the question of why there are no blocks formed around mergers between locally important banks. Merged banks, such as Banco Bilbao Vizcaya or ABN-AMRO, appear within other blocks. The explanation might be that the intrinsic difficulties of making the merger work has limited the banks' cooperative strategy, and that whatever links they have are maintained as the options they were before the merger, but are not actively pursued.

Blocks made up of a central actor and its acquisitions in other countries did not emerge from our study because of the specified boundaries of the network. We can identify one clear case: that of Deutsche Bank. A second such block seems to be forming around Credit Lyonnais and is threatening the Europartners alliance. An even more interesting case is that of Banco de Santander and Royal Bank of Scotland, which are expanding jointly through Europe.

Non-hierarchical within-country blocks are rare. They are represented mainly by the German Landesbank tie reinforcement. In Italy and in Spain, saving banks are rapidly trying to achieve geographical complementarity, now that the geographical limitations have been removed. Local consolidation linkages are more frequent than these two blocks might suggest; within-country linkages represent 55% of the total number of linkages in the database (see Table 5). The relative importance of local consolidation linkages is supported by the fact that 56% of the hierarchical linkages (mergers, acquisitions, and majority equity holdings) were within-country.

Table 5. Linkages by Country

	Austria	Belgium	Denm.	Eire	Finland	France	Germ.	Italy	Lux.	Monaco	Nether.	Norway	Portugal	Spain	Sweden	Switz.	UK
Austria																	
Belgium	1	13															
Denmark			16														
Eire				3													
Finland				1	81												
France		11		1		54											
Germany	1	1	1			11	41										
Italy		2				54	18	92									
Luxembourg		3				2	3	2									
Monaco																	
Netherlands		7				5	7		1		10						
Norway					1	2	1				1	11					
Portugal						1	1										
Spain		6				25	14	13	1	1	1		2	33			
Sweden			1		2							2		1	6		
Switzerland	1	1				5	10	4			1						9
United Kingdom		7	2		4	14	10	18	1		4	3	2	8	2	2	21
Total Country	3	52	21	4	89	185	119	203	13	1	37	21	6	105	14	33	98
% of Total	0.4%	7.5%	3.0%	0.6%	12.8%	26.5%	17.1%	29.1%	1.9%	0.1%	5.3%	3.0%	0.9%	15.1%	2.0%	4.7%	14.1%
Within-Country Alliances as % of country total		25.0%	76.2%	75.0%	91.0%	29.2%	34.5%	45.3%			27.0%	52.4%		31.4%	42.9%	27.3%	21.4%
Cross-country Alliances as % of country	100.0%	75.0%	23.8%	25.0%	9.0%	70.8%	65.5%	54.7%	100.0%	100.0%	73.0%	47.6%	100.0%	68.6%	57.1%	72.7%	78.6%

Comparison with the automobile industry

Some further conclusions can be drawn by looking at the structure of within-block links. There are no absolute criteria for evaluating the characteristics of blocks, given that they depend entirely on the characteristics of the population and the relationships between its members. We shall compare our findings with those of a similar study carried out by Nohria and García-Pont (1991) on the automobile industry. Table 6 compares the average values of the block parameters.

Table 6. Comparison between the auto and the banking case

	Average Diagonal Density	Average Freeman's Graph Centralization	Average Complementarity Index
World Automobile Industry	0.429	0.825	0.755
European banking Industry	0.337	0.474	0.354
Difference in Average	0.092	0.351	0.401

Freeman's graph centralization is lower in the case of the banking industry. This reflects the fact that most of the blocks have more than one center (e.g. block 1 centered around Hambros, IBSPT, and Bayerische Vereinsbank, while block 4 centered around the ABN-AMRO combination and Banco Popular). The prominence of individual actors is low, as is shown by the relative degree and relative betweenness measures in Tables 1 through 10. Whereas in the automobile industry, Nohria and García-Pont identified three blocks out of six with Freeman's graph centralization over 0.9, in this study we do not have any value over 0.5. As we stated above, the limit placed on the boundaries of the network favored the identification of non-hierarchical complementary blocks. However, when looking in the overall database for a more star-like block that included one of the firms in our sample, we found only the Deutsche Bank block. The predominance of hierarchical links in strongly centered blocks also placed a barrier on the existence of such blocks.

In fact, block 9 includes several mergers with no other alliances. As we argued above, the demands that mergers and acquisitions place on an organization in terms of resources seem to limit the number of linkages that firms involved in mergers have the capacity to establish.

The complementarity index was also significantly lower in the banking case. This difference might be caused by our using the country of origin to construct the index. However, the frequent duplication of banks from the same country within the different blocks also lowers its value. The possible conflicts of interest that these multiple linkages give rise to might be understood if we considered these linkages as options for the future development of the relationships. As we stated in the theoretical part of the paper, whenever a linkage can be understood as an option, there is some flexibility of commitment, which creates confusion as to the characteristics of the blocks.

Based on general information, we argue that the linkages do not involve highly specific assets and should therefore be easily reversible. When we asked industry managers about the linkages, none thought of them as strong commitments. Nobody was deeply concerned about the difficulty of breaking these linkages, quoting examples such as the reversed deals between Banco de Santander and Cariplo, or between Banco Bilbao Vizcaya and Banque Nationale de Paris.

Most blocks were incomplete in the geographical dimension. As can be seen from Table 7, not all the blocks have a presence in all countries. To the extent that country base is an indicator of the stock of strategic resources, we can argue that there is a clear asymmetry in the distribution of resources among the blocks. Firms have to prioritize, first between local consolidation and international expansion, then between the resources that are going to be most important for each of them. This, in turn, will depend on the context in which each firm has developed its strategic resources.

Table 7. Number of firms in each block by country

COUNTRIES	BLOCKS										TOTAL COUNTRY
	1	2	3	4	5	6	7	8	9	10	
GERMANY	2		1	1		2	5		2	7	20
FRANCE	5		2			2		1		2	12
UK	1		1	1					2	5	10
ITALY	3	8	4			3				6	24
SPAIN	1			1		2		3	1	2	10
HOLLAND				3					2		5
BELGIUM	1		1					1	1		4
LUXEMBOURG									1		1
AUSTRIA										1	1
SWITZERLAND									2	2	4
SWEDEN					1				2	1	4
DENMARK					3				2	2	7
NORWAY					2					1	3
FINLAND					1					1	2
TOTAL BLOCK	13	8	9	6	7	9	5	5	15	30	107
NUMBER OF COUNTRIES IN BLOCK	6	1	5	4	4	4	1	3	9	11	14

Surprisingly, even though the average size of the blocks was significantly greater in the banking industry, the difference in average block density was not very large. The number of alliances within the banking industry, the larger number of players, and the possibility of maintaining the alliances on standby make this possible, even though competing alliances might be limited by the negative exchange network effect mentioned earlier.

CONCLUSION

In this paper we have shown that strategic blocks exist in the European banking sector. This is not, therefore, a one industry phenomenon. We have also developed a framework for understanding the different types of linkage and how blocks emerge from them. We found support for these explanations in the differences between the world automobile industry and the European banking industry.

There is one final consideration. The strategic block phenomenon is the result of a process of strategic interaction between the firms in an industry. We believe that in the European banking industry this process is far from complete. While writing the paper, we kept reanalyzing the data, adding newly formed linkages. The strategic block structure of the data should become clearer if and when the industry reaches a certain equilibrium. Some of the conclusions of this study will be affected by the point in time at which this occurs. Even though we do not expect radical changes in the results, we do expect some reconfiguration of the blocks. Blocks that are based on reversible linkages are inherently unstable and we would predict that firms following this strategy will choose among the options that arise as a result of future developments in the industry. □

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- (1) For a more detailed definition and discussion of strategic blocks as opposed to strategic groups, see Nohria and García-Pont (1991).
 - (2) For a more detailed description of the changes in European banking, see Dufey (1991).
 - (3) Hirsch (1990) shows that these threats and opportunities are asymmetric among EC and non-EC firms. Non-EC firms lose out relative to EC firms.
 - (4) Walter (1988) describes the strategy of a financial institution in three dimensions: the products or lines of business in which the firm is active; the different types of client to which the firm offers these products and services; and the different geographical arenas in which the products are offered.
 - (5) Scale here refers to the total scale of a given product/market/client activity within the firm, while density refers to its scale within a relevant geographical area, e.g. metropolitan area, subregion, or country.
 - (6) For simplicity, we shall call these «strategic capabilities», although we acknowledge that there are differences between capabilities, assets and resources.
 - (7) Lessard and Perotti (1990) describe the diversity of European financial services in greater detail.
 - (8) In Spain, the unsuccessful hostile takeover bid by Banco de Bilbao against Banco Central was initially supported by the Spanish government, and the mergers between Banco de Bilbao and Banco de Vizcaya, and between Banco Central and Banco Hispano Americano were encouraged by Carlos Solchaga, the Spanish Minister of Economy and Finance. The creation of Argentaria through the merger of various state-owned financial institutions was designed to achieve a state bank similar in size to other major European banks, with an ability to compete on a pan-European and global scale. Press reports indicate that the ABN-AMRO linkage was also encouraged by the Dutch government.
 - (9) As identified by The Banker's Top 500 European Banks rating (October 1990).
 - (10) The data on strategic linkages was obtained mainly from industry and trade journals (mainly *Financial Times*, *Economist*, *The Banker*, *Institutional Investor*, *Actualidad Económica*, *Mercado*, *Who Owns What in World Banking 1989*, the Nomisma publication *Acquisizioni Fusioni Concorrenza*, and other sources). The data was then cross-checked and complemented with a Credit Suisse/First Boston database on financial sector mergers and acquisitions. Given that our coverage was limited mainly to English-speaking sources and that, particularly in the financial sector, not all linkages are made public, it is quite difficult to know whether all the established linkages have been included in the data set. However, we showed the database to two industry experts, and we are satisfied that we have covered all significant linkages in the industry. The complete database included 717 linkages among 734 firms, of which 454 involved only banks and savings banks.
 - (11) See Marsden (1990) for a review of network analysis as it has been used by sociologists and organizational behavior scholars in the last two decades.
 - (12) We also had to decide whether two merged organizations should be considered as one single actor or as two separate actors. If the only link between the two firms was the merger, we kept them as separate entities. Otherwise, we kept separate only those firms for which the majority of the linkages occurred prior to the merger. Thus, we considered Banco Bilbao Vizcaya as one entity and Banco Central and Banco Hispano Americano as two separate ones.
 - (13) We have closely followed Nohria and García-Pont's (1991) methodology. The CONCOR algorithm has frequently been used in organizational research (Knoke and Rogers, 1978; Van de Ven, Walker and Liston, 1979; Schurom and Withnow, 1988) and more recently has been applied to the study of cooperative agreements (Walker, 1988; Nohria and García-Pont, 1991; Kogut, Shan and Walker, 1991).
 - (14) This equity holding was later sold to the market. BBV argued that restructuring the firm after the merger absorbed all their resources and that they could not extract any benefit from the link in the current situation.

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Appendix A

Table 5. Composition of Block 1

BLOCK 1 Firm	Country	Relative Betweenness	Relative Degree
BANCO BILBAO VIZCAYA	Spain	0.000	0.083
BANCA POPOLARE DI NOVARA	Italy	0.000	0.083
BAYERISCHE VEREINSBANK	Germany	0.439	0.417
CREDIT AGRICOLE	France	0.000	0.250
CREDIT COMMERCIALE DE FRANCE	France	0.167	0.167
CREDIOP	Italy	0.152	0.333
CASSA DI RISPARMIO DI TORINO	Italy	0.000	0.083
CAISSE CENT. DE BANQUES POPULAIRES	France	0.167	0.167
HAMBROS	United Kingdom	0.470	0.500
ISTITUTO BANC. SAN PAOLO DI TORINO	Italy	0.439	0.333
KREDIETBANK	Belgium	0.000	0.083
SUEZ	France	0.000	0.083
VEREINS UND WESTBANK	Germany	0.000	0.083

Table 6. Composition of Block 2

BLOCK 2 Firm	Country	Relative Betweenness	Relative Degree
BANCA NAZIONALE DEL LAVORO	Italy	0.286	0.429
BANCO DI NAPOLI	Italy	0.405	0.571
CASSA DI RISP. DI GENOVA E IMPERIA	Italy	0.148	0.429
CARIPLO	Italy	0.071	0.429
EFIBANCA	Italy	0.000	0.143
CREDITO ROMAGNOLO	Italy	0.286	0.286
ISTITUTO MOBILIARE ITALIANO (IMI)	Italy	0.476	0.429
NUOVO BANCO AMBROSIANO	Italy	0.000	0.143

Table 7. Composition of Block 3

BLOCK 3 Firm	Country	Relative Betweenness	Relative Degree
BANCA COMMERCIALE ITALIANA	Italy	0.607	0.500
BHF BANK	Germany	0.000	0.125
BANCA NAZIONALE DELL'AGRICOLTURA	Italy	0.000	0.125
CIC GROUP	France	0.000	0.125
CREDITO ITALIANO	Italy	0.464	0.500
BANK BRUSSELS LAMBERT	Belgium	0.000	0.125
MEDIOBANCA	Italy	0.250	0.375
PARIBAS	France	0.250	0.250
WARBURG	United Kingdom	0.000	0.125

Table 8. Composition of Block 4

BLOCK 4 Firm	Country	Relative Betweenness	Relative Degree
ALGEMENE BANK NETHERLAND	Netherlands	0.500	0.600
AMRO	Netherlands	0.000	0.200
BARCLAYS	United Kingdom	0.000	0.400
BANCO POPULAR	Spain	0.500	0.400
BAYER. HYPOTHEKEN & WECHSEL BANK	Germany	0.600	0.600
RABOBANK	Netherlands	0.000	0.200

Table 9. Composition of Block 5

BLOCK 5 Firm	Country	Relative Betweenness	Relative Degree
ANDELSBANKEN DANEBANK	Denmark	0.000	0.333
BERGEN BANK	Norway	0.133	0.333
DEN NORSKE CREDITBANK	Norway	0.033	0.333
PRIVATBANKEN	Denmark	0.533	0.500
SDS BANK	Denmark	0.000	0.333
SKANDINAVISKA ENSILKA BANKEN	Sweden	0.133	0.333
UNION BANK OF FINLAND	Finland	0.633	0.500

Table 10. Composition of Block 6

BLOCK 6 Firm	Country	Relative Betweenness	Relative Degree
BANCO CENTRAL	Spain	0.000	0.125
BANCO DI SANTO SPIRITO	Italy	0.000	0.125
BANCO HISPANO AMERICANO	Spain	0.250	0.500
BANQUE NATIONALE DE PARIS	France	0.000	0.125
BANCO DI ROMA	Italy	0.429	0.500
CASSA DI RISPARMIO DI ROMA	Italy	0.250	0.250
COMMERZBANK	Germany	0.429	0.500
CREDIT LYONNAIS	France	0.000	0.375
DRESDNER BANK	Germany	0.250	0.250

Table 11. Composition of Block 7

BLOCK 7 Firm	Country	Relative Betweenness	Relative Degree
Bremer Landesbank Kreditanstalt Oldenburg-GiroZ	Germany	0.000	0.250
Deutsche Girozentrale-Deutsche Kommunalbank	Germany	1.000	1.000
Landesbank Rheinland-Pfalz-Girozentrale	Germany	0.000	0.250
Landesbank Schleswig-Holstein Girozentrale161	Germany	0.000	0.250
Sparkasse der Stadt Berlin West	Germany	0.000	0.250

Table 12. Composition of Block 8

BLOCK 8 Firm	Country	Relative Betweenness	Relative Degree
CAJA MADRID	Spain	0.400	0.250
ASLK-CGER BANK	Belgium	0.400	0.250
CAIXA DE PENSIONS	Spain	0.067	0.500
CAJA DE BARCELONA	Spain	0.571	0.500
GRUPE DES CAISSES d'EPARGNE ECUREUIL	France	0.571	0.500

Table 13. Composition of Block 9

BLOCK 9 Firm	Country	Relative Betweenness	Relative Degree
BAYERISCHE LANDESBANK GIROZENTRALE	Germany	0.000	0.062
MONTE DEI PASCHI DI SIENA	Italy	0.000	0.062
BANCA POPOLARE DI VERONA	Italy	0.000	0.062
BANCO SANTANDER	Spain	0.000	0.062
BANK LEU	Switzerland	0.000	0.062
BANQUE GENERALE DE LUXEMBOURG	Luxembourg	0.000	0.062
COPENHAGEN HANDELSBANK	Denmark	0.000	0.062
CREDIT SUISSE	Switzerland	0.000	0.062
DEN DANSKE BANK AF 1871	Denmark	0.000	0.062
GENERALE DE BANQUE/GENERAL BANK	Belgium	0.000	0.062
NEDERLANDSCHE MIDDENSTANDBANK	Netherlands	0.000	0.062
NORDBANKEN	Sweden	0.000	0.062
PKBANKEN	Sweden	0.000	0.062
POSTBANK	Netherlands	0.000	0.062
ROYAL BANK OF SCOTLAND	United Kingdom	0.000	0.062
STANDARD CHARTERED	United Kingdom	0.007	0.125
WESTDEUTSCHE LANDESBANK	Germany	0.000	0.062

Table 14. Composition of Block 10

BLOCK 10 Firm	Country	Relative Betweenness	Relative Degree
BADEN-WURTTENBERGISCHE BANK AG	Germany	NA	NA
BANESTO	Spain	NA	NA
BANCA POPOLARE DI PORDENONE	Italy	NA	NA
BANCO DI SARDEGNA	Italy	NA	NA
BERLINER BANK AG	Germany	NA	NA
BIKUBEN	Denmark	NA	NA
BANK FUR GEMEINWIRTSCHAFT	Germany	NA	NA
BANK OF SCOTLAND	United Kingdom	NA	NA
BANCA POPOLARE DI BERGAMO	Italy	NA	NA
BANCO DI SICILIA	Italy	NA	NA
CHRISTIANIA BANK OG KREDITKASSE	Norway	NA	NA
CREDIT MUTUEL AGRICOLE D'AQUITANIA	France	NA	NA
CREDIT ANSTALT-BANKVEREIN	Austria	NA	NA
CASSA DI RISPARMIO DI UDINE & PORDENONE	Italy	NA	NA
CASSA DI RISPARMIO DI VERONA BICENZA E	Italy	NA	NA
DEUTSCHE BANK	Germany	NA	NA
DG BANK /DEUTSCHE GENOSSENSCHAFTBK	Germany	NA	NA
BANCO EXTERIOR DE ESPAÑA	Spain	NA	NA
GIROZENTRALE VIENNA GVZ	Austria	NA	NA
HAMBURGISCHE LANDESBANK-GIROZENTR	Germany	NA	NA
HAMBURGER SPARKASSE	Germany	NA	NA
JYSKE BANK	Denmark	NA	NA
LLOYDS BANK	United Kingdom	NA	NA
NATIONAL WESTMINSTER BANK	United Kingdom	NA	NA
SCHRODERS	United Kingdom	NA	NA
SOCIETE GENERALE	France	NA	NA
SKOP BANK GROUP	Finland	NA	NA
SVENSKA HANDELSBANKEN	Sweden	NA	NA
SWISS BANK CORPORATION	Switzerland	NA	NA
TSB	United Kingdom	NA	NA
UNION BANK OF SWITZERLAND	Switzerland	NA	NA

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