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Directorship Interlocks in Comparative Perspective: The Case of Spain

Ruth V. Aguilera

This paper studies the network of intercorporate relationships in Spain in the context of advanced capitalist economies. Economic development patterns and the three main models of corporate structure – Anglo-Saxon, Continental European, and Japanese – are discussed. On the basis of an analysis of the network of director interlocks among the 100 largest industrial corporations, 50 largest banks and 30 largest insurance companies in 1993, I conclude that Spain approximates the Continental European model. Three main findings result from this analysis: (1) Spanish domestic banks coupled with utility companies are located at the core of the intercorporate network; (2) capital-intensive industrial corporations belong to the inner circle of the network, while foreign-owned and light industry enterprises are isolates in the network; and (3) directorship interlocks in Spain tend to take place across industrial sectors rather than within them. I argue that bank-led economic development, high state intervention, and delayed but intensive foreign capital penetration explain the three corporate network outcomes. By combining historical-structuralism and social-network analysis, this study contributes a new empirical case to the existing literature, showing how historical structural factors help to explain intercorporate relations.

Introduction

Economic organization varies considerably across countries. The study of relationships among corporations provides an informative framework in which to analyse economic organization across advanced capitalist economies, and can help us to understand patterns of economic development. However, most studies of intercorporate relations are usually based either on quantitative analyses of social networks or on broad historical-structural analyses of economic organization. I suggest a new avenue of inquiry that integrates these approaches. In particular, I examine the intercorporate relations of large enterprises using network methods, informing the analysis by discussing the historical-structural features that have shaped the resulting types of intercorporate relations.

This research focuses on the linkages among firms and the factors that have shaped these linkages

over time. I describe and analyse the *directorship interlocks* within a particular national case: Spain. Directorship interlocks are created when one individual is a member of two or more boards of directors. I investigate the corporations that are at the core of Spanish economic life, and the business subgroups within the corporate network. I draw on historical-structural analysis to provide a dynamic account for the current pattern of intercorporate relations.¹

The economic organization of Spain has undergone dramatic changes in the last forty years, and therefore it is an excellent social laboratory within which to examine intercorporate relations. In the last half century, Spain, a late-comer to industrialization, shifted from a mostly agrarian economy to a service-oriented one; from an autarky industrialization model to a market liberalization one; and from an economically and politically isolated country to a

full-fledged member of the European Union. Yet Spain presents a unique combination of financial deregulation, economic concentration, and international pressures that is reflected in its corporate network structure. Spain's recent move from an underdeveloped country to a middle-income industrialized one provides for interesting comparisons with other capitalist nations.

There are very few studies conducting systematic comparisons of directorship interlocks.² Although this paper focuses on 1993 intercorporate relations in Spain, it also introduces a comparative perspective by placing the Spanish case within a broader empirical framework comparing its results to those of directorship interlock studies conducted in Germany, Britain, Japan and the U.S. In this way, we can appreciate how the Spanish case resembles current intercorporate models.

This article is organized as follows: In the first section, I present the theoretical approaches to the study of intercorporate networks. I describe the different paths of industrialization in order to highlight the distinct agents and institutions involved. Then, I spell out the *triangular corporate structure model* to underscore the differences among the three broad models: Anglo-Saxon, Continental and Japanese. From the study of economic developmental trends and corporate structure models, I derive historical-structural factors that structure intercorporate relations. In the second section of the paper, I introduce the data and methods employed for my study of the Spanish case, present the social network analysis results, discuss these results in light of the theoretical perspectives I suggested, and finally compare them with other national cases.

Historical-Structural Analysis

The *historical-structural analysis* of large business corporations examines the building of interconnections among economic and political actors and organizations over time, the legal forms of business, and the changing patterns of ownership (e.g., Berkowitz, 1982; Burt, 1983; Scott, 1987). In this article, I show how different paths of industrialization and models of corporate structure shape current patterns of large business intercorporate networks. I argue that national structural features

including the role of banks and the state, together with international influences shape intercorporate outcomes.

Economic Development and Historical Structuralism

Different actors and institutions play a leading role in the various economic development processes. The economic historian Gerschenkron (1962) studies how a country's 'relative economic backwardness'³ determines its industrialization process, and emphasizes that 'the opportunities inherent in industrialization may be said to vary directly with the backwardness of the country' (1962:8). Gerschenkron's thesis is relevant to this research because it highlights the crucial role of banks and the state in the process of late economic development. He asserts that late-comers adopted a universal type of bank – together with state intervention – in order to catch up in the industrialization process.

The historical repercussions of industrialization on a country's economic structure can be illustrated by contrasting the British and the German routes to industrialization.⁴ Great Britain, the first industrial society, experienced its industrial takeoff in the absence of investment banks. In the British entrepreneurial system of the late eighteenth century, the main source of capital accumulation was self financing – usually by the entrepreneurial family firm (Sylla and Toniolo, 1991). Conversely, due in part to the small size of its bourgeoisie, Germany – which industrialized nearly half a century after Great Britain – did not possess sufficient entrepreneurial willingness or individual capital accumulation to invest in its industry. As a result, when Germany 'tuned in' to the industrialization process, it had to rely on foreign capital and primarily on its universal banks. For the German case, 'banks were of crucial importance in mobilizing capital and in providing short-term credit, and legal limitations on block voting in corporate affairs ensured that the company boards were filled with bankers' (Kitchen, 1978 in Scott, 1987:217). Hence, different actors were key to economic development in Germany and Great Britain.

Subsequent events reinforced the different paths of development. For instance, while the 1870s

economic depression severed the already weak links between industrial firms and domestic banks in the British system, in Germany this crisis strengthened the economic linkages between banks and industry, enhancing the position of major financial institutions. Thus, by the turn of the century, German universal banks, which became the dominant banking form in Continental Europe, were fully established to source short term capital (typical of commercial banks), as well as to provide long-term investment capital.

Gerschenkron's analysis goes deeper in describing the role of universal banks' intervention. He notes that the tight symbiosis between banks and industries characteristic of the European Continent was devoted mostly to promoting heavy industrial development. In the case of Germany, Gerschenkron (1962:15) describes the primary sphere of activities of German banks until the outbreak of World War I as coal mining, iron and steel making, electrical and general engineering, and heavy chemical output.

Gerschenkron's reasoning shows us that Britain's economic organization in the late nineteenth century proceeded without substantial utilization of banking, but rather through the amalgamation of family enterprises, with family control persisting in the enlarged enterprises. By contrast, large banks and joint stock companies organized into combines and cartels were the pillars of German industrialization. Further, large German firms – Krupp, Thyssen, Siemens, Mannesmann, and later mergers such as Vereinigte Stahlwerke, Daimler-Benz, and I.G. Farben – were allied with major banks through capital and personal relations (Scott, 1987:217). Thus, different historical capital relations established divergent mechanisms to finance business corporations and set patterns of intercorporate relationships. Therefore, when studying structures of economic organization, one must take into account industrialization processes.

Triangulating Corporate Structures

We have seen how divergent routes of industrialization influence the contemporary economic organization of industrialized societies, particularly the role of banks. Different countries offer corporations varied institutional environments, and such variation is reflected in each country's

corporate structure. The literature on capitalist systems (Zysman, 1983; Berglöf, 1990; Albert 1993; Roe, 1993; Prowse, 1994; Steinherr and Huveneers, 1994) groups national corporate governance models into ideal-typical cases: the Anglo-Saxon model (a market-oriented or 'New American Model') and the Continental model (a bank-oriented or 'Rhine Model'). To this dichotomy, I add the Japanese model.⁵

The comparison of these three corporate structure models shows us how the role of the state and international pressures condition significant differences in national economic organization, particularly attributes of financial systems, corporate legislation, and foreign capital penetration. The latter are structural factors shaping corporate networks.

The Anglo-Saxon model (exemplified by the British and United States national cases) presents an 'entrepreneurial' pattern of industrialization traditionally characterized by individual shareholders, and more recently by institutional shareholders. Its market-based financial system deeply determines the intercorporate structure. Markets play a leading role in managing capital (Steinherr *et al.*, 1994:272) through the provision of a wide range of financial instruments and highly developed capital markets (Berglöf, 1990:244). In addition, the Anglo-Saxon legal tradition draws a thick line between commercial and investment banks, and relies on severe anti-trust regulations (Sherman Act in 1890). Thus for example, the Clayton Act in 1914 declared interlocking directorates among competing companies to be an illegal practice. Further, United States corporate law (Glass-Steagall Act in 1933) restricts ownership affiliations between bank and nonbank enterprises (Roe, 1993), and so prevents banks (commercial and investment) from becoming more influential in industry. As a consequence, American banks have historically been relatively small and weak.

The Continental model of corporate structure is distinguished by bank-controlled and bank-allied companies, and has credit-based financial systems favoring low-risk, long-term financing. Banks, particularly commercial banks, exert significant influence over corporate affairs through ownership and governance privileges. In Germany, banking influence is accentuated by the organization of

most large industrial firms as joint-stock companies (Kocka, 1980:91). In addition, German banks may exercise direct and continuous power over industrial firms through the supervisory boards (*Aufsichtsrat*) characteristic of the dual board structure of German corporations (Prowse, 1994).

Universal banks are the predominant financial institutions in the Continental model. The coordination of financial activities is often orchestrated by the state, which supports bank lending or actively intervenes through regulation and control of credit allocation (Berglöf, 1990:245). Direct state intervention in the economy can be exercised through either the provision of cheap credit for certain industrial sectors or the establishment of state-owned enterprises. Long-term credit arrangements foster the relationship of banks with industry. Another main feature in this corporate structure model is the comparatively underdeveloped capital market, since banks are the chief lending institutions. Moreover, contrary to Anglo-Saxon corporate law, there are no enforced legal restrictions on establishing inter-company economic agreements. Thus, in Germany 'the 1897 verdict of the German Supreme Court (*Reichsgericht*) [upheld] cartel agreements as legally binding contracts under civil law, even in the cases involving a restraint of trade. [...] And by the interwar period the "regulated competition" of cartels had become a fully legitimate and accepted form of market organization' (Windölf and Beyer, 1996:205–206). It was only after the Second World War that cartels were banned in Germany. However, some coalitions of family shareholders (e.g. Thyssen, Krupp, Flick) and the 'Big Three' universal banks were able to rapidly regain their dominant positions in the German economy. Thereafter, cartels were regarded favourably as an internal market strategy for international survival.

Finally, the Japanese model of corporate structure is characterized by its main organizational forms: the *Keiretsu*. These are groups of Japanese firms tied together through reciprocal shareholdings, credit relations, trading relations and interlocking directorships, that became an accepted form of economic organization by the mid-1950s.⁶ Despite the Glass–Steagall Act imposed during the American postwar occupation (which was intended to separate commercial from investment banks), most Japanese large financial

corporations were exempted from these regulations since they were considered strategically crucial for the economic recovery, especially given the underdeveloped stock market in Japan. The Japanese corporate system undertook a different path from the Anglo-Saxon model, skewing industry financing toward banks and away from the securities market (Roe, 1993:1955).

In addition, as Evans (1995) shows, Japan's 'developmental state' has become a central actor since the Japanese post-war 'economic miracle,' primarily throughout its different state financial institutions⁷ and developmental agencies such as Japan's Ministry of International Trade and Industry (MITI) (Johnson, 1982). Hence, as in the Continental model, both Japanese banks and the state affected Japanese corporate structure. Contrary to the Continental model, however, the underdeveloped Japanese stock market provided opportunities for groups of investors to get involved as common shareholders (*Kabushiki mochiai*). As a result, '[the] board of directors of the Japanese corporation looks remarkably similar to that of Anglo-Saxon corporation in structure' (Prowse, 1994:42), in that large shareholders are not frequently represented on the board of directors, but rather prefer to influence the firm through informal networks (e.g., the *keiretsu* presidents' council).

In light of the economic development patterns and the corporate structure models discussed, I argue that the following hypotheses summarize the main historical-structural factors shaping intercorporate relations:

- (1) Industrialization processes in different countries are led by distinct key institutions which in turn influence the roles played by these actors in the intercorporate network;
- (2) State policies of economic regulation in general, and legal forms of property relations in particular, either facilitate or thwart the formation of intercorporate relations;
- (3) Features of financial systems further designate the actors prominent in building intercorporate relations;⁸
- (4) International pressures influence the structure of intercorporate relations both through capital injections and settlements of foreign-owned corporations, and through supra-national regulations.

The interplay of these conditioning factors can be observed by studying the case of Spain. Spain, being a late-comer to industrialization, has traditionally relied on banks as a primary financing source. This reliance was stressed during the almost forty years of Franco's dictatorship (1939–75), and particularly during the economic autarky period (1939–mid 1950). Moreover, as in most dictatorships, the state played a highly interventionist role in the economy, creating a large number of state-owned enterprises. In addition, direct foreign investment was restricted until the transition to democracy in the late 1970s. With Spain's entry into the European Union in 1986, there has been a great increase in direct foreign investment. Since then, a large number of foreign-owned enterprises have entered Spanish corporate scene. Given this broad historical structural pattern, we would expect that banks together with state-owned corporations would play a leading role in Spanish intercorporate relations, and that foreign-owned corporations, although very important in the growing Spanish economy, would not be so intertwined with the Spanish intercorporate structure.

Although much research on the relationship between banks and industry in Spain exists, research on directorship interlocks is scarce. The few descriptive studies by economists on directorship interlocks during the Franco period are: Velarde's (1969) pioneer study of the 'blue blood' of Spanish capitalism, and in particular, of bank boards; Muñoz's (1970) research on the power of banks and their ruling role within Spanish capitalism; and Tamames' (1966, 1977) work on financial oligarchy and the continued relationship between banks and industrial sector monopolies despite attempts at financial deregulation since 1969. Further, Tortella and Palafox (1984) reveal how the six 'Big Banks' and the largest firms in the main heavy industry sectors in 1930 established tight interlocking directorates. All these studies emphasize the status quo privileges of Spanish banks, and their dominance in the economy since the beginning of the century; this was accentuated under the dictatorship regime. Among sociologists, research has focused on the role of entrepreneurial elites and capitalism (De Miguel and Linz, 1963; Pinilla de las Heras, 1968; De la Sierra *et al.* 1981; Martínez, 1993; Moya, 1984; Pérez Díaz, 1985; Guillén, 1994).

Data and Methods

Sample

Since one of the aims of this research is to make the Spanish case comparable to the existing directorship interlock studies for other national cases, the design of the data collection and the social network methods employed were chosen in a conscious effort to replicate the research design generally employed in the literature on directorship interlocks.⁹ The sample therefore includes the 100 largest Spanish non-financial corporations ranked by sales, the 60 largest Spanish banks, and the 30 largest Spanish insurance companies ranked by assets in 1993. The ranking of the companies was obtained from Dun & Bradstreet (*Actualidad Económica*, 1994). The data base includes large Spanish enterprises, though the size of Spanish corporations (both financial and non-financial) is small relative to corporations in other Western economies.¹⁰

Data

The type of network relations I study required the compilation of 'complete network data' on all the companies' boards of directors (Marsden, 1990). I collected the data for each firm in 1993. The data on the non-financial corporations were obtained from *Las Mayores 2.500 Empresas* (1994), and those on the financial corporations from *The Maxwell Espinosa Shareholder Directory* (1994). For the firms not reported in either of these two sources, data were obtained from the following sources: *Participaciones Significativas en Sociedades Cotizadas* (1993), and on-line databases: *Corporate Affiliations* (1993) and *Worldscope* (1993).

Spanish boards of directors are theoretically appointed by the shareholders. The board of directors usually includes a combination of internal managers and outside directors. These boards have exceptionally low turnover. There are no legal restrictions that prevent individuals from belonging to more than one board of directors in Spain.

Social Network Analysis of Directorship Interlocks

As a trace of the historical-structural factors shaping national economic organization in Spain, I make use

of network data on directorship interlocks. Social network analysis, focusing on relational data, provides the necessary methodological tools for studying relationships among interacting units. Sociologists Mizruchi and Schwartz claim that 'by understanding the structure of relations among organizations, and among individuals who span organizational boundaries, we can learn a great deal about the behaviour of those organizations, as well as their internal workings. Conversely, we cannot fully understand what goes on inside an organization without knowledge of the organization's position within the structure of interorganizational relations' (Mizruchi and Schwartz, 1987:7–8). This view contends that the location of the different enterprises within the corporate network constitutes economic structure.

The study of intercorporate ties is also important because, given enterprises' unequal access to information, such ties may provide them with the opportunity to exert power or influence over one another (Mace, 1971; Pahl and Winkler, 1974; Brudney, 1981; Useem, 1984), establish trust relationships (Dore, 1983; Hamilton and Biggart, 1988; Gulati, 1995), access resources (Pfeffer and Salancik, 1978; Burt, 1980; Pennings, 1980; Mintz and Schwartz, 1985), or gain control over other actors (Mintz and Schwartz, 1985; Ziegler *et al.*, 1985). Intercorporate relations, and directorship interlocks in particular, constitute a governance structure that is an alternative to market-hierarchy forms of economic organization (Chandler 1977; Williamson 1985). In order to minimize transaction costs, corporations may utilize network structures as an alternative to both arms-length market relationships and in-house ownership; and in addition, enterprises may build inter-organizational linkages by means of shared directorships.

Directorship interlocks are an important source of information for the study of corporate structure. According to C.W. Mills, these ties are intrinsically meaningful as channels of communication and constitute a web of communication through which general business information and opinion can be transmitted (Mills, 1956:122). Mintz and Schwartz (1985) argue that directorship interlocks have evolved into the major form of strategic information exchange because they rely on personal trust and individual integrity and therefore provide the

mechanism for the circulation of general information (Mintz and Schwartz, 1985:183). The mere symbolic fact of sitting on different boards of directors creates relational ties that open up possibilities not only of information access, but also of communication and trust, which might not be present through pure market mechanisms and which do not require hierarchical organizational forms. Directorship interlocks, then, are significant indicators of control and coordination relationships.

Constructing the Social Network

The raw data collected on the firms' boards of directors is held in an 'affiliation' data matrix, in which enterprises are shown in the rows and directors in the columns. The affiliation matrix is a dual matrix where the relationships are those of director membership. I transformed this rectangular affiliation data matrix into an adjacency matrix by multiplying the affiliation matrix by its transpose, thereby obtaining a 190×190 'adjacency' matrix (Wasserman and Faust, 1994). The companies-by-companies adjacency matrix shows the directorship interlocks that exist among the 190 largest Spanish companies. In this matrix, each cell shows the number of common directors for a pair of companies (Scott, 1991:45). Following Breiger's (1974) two axioms for the two-mode network data or membership networks,¹¹ the adjacency matrix is symmetrical around its diagonal, and therefore is an 'undirected' network. I have also created a second dual matrix which collapses the 190 corporations into 16 industrial sectors. For the computation of network measures, I use the software package UCINET IV (Borgatti, Everett and Freeman, 1992).

Results and Discussion

In the following sections, I describe and analyse the Spanish intercorporate network in 1993 through two analyses of this social network: the first examines centrality, the second identifies business groups. I compare the Spanish intercorporate network with other national cases that exemplify the three corporate structure models, and thereby illustrate

how historical-structural factors shape intercorporate relations.

1. Centrality Analysis

The study of the centrality of individuals or organizations in social networks is a way of identifying visible, prominent actors in systems of social relations. Freeman's (1978/79)'s influential article introduces three conceptually distinct measures of point centrality: degree, closeness, and betweenness. In this research, I use measures of *degree centrality* because they identify the most visible actors within a network. Degree centrality measures the number of other corporations to which a given corporation is adjacent, in a manner very similar to that used to locate 'stars' and 'isolates' in sociometric analysis.

In this study, the membership of a director on two or more different corporations' boards of directors defines the connection; I count the total number of shared directors, not the total number of other corporations to which a given corporation is linked. A corporation with high degree centrality is involved with many other corporations in the network through sharing directors who sit on their respective boards. One would assume that such a corporation has more access to information and control over resources, and that it would be a highly visible corporation in the network. Corporations with low degree centrality are peripheral to the intercorporate network, while those with degree centrality zero are isolated in the network, since they share no directors with other corporations.

In the 1993 network of the 190 largest Spanish corporations, the actors with the highest degree centrality are financial corporations and utilities, in particular electricity-generating companies. Table 1 includes all corporations with degree centrality above 10. These are the most central financial and non-financial corporations in the Spanish intercorporate network.

The financial corporations at the core of the Spanish intercorporate network are the largest Spanish banks. BCH, a private domestic bank, has the highest degree centrality (35) in the corporate network. The other banks listed in Table 1 are four private domestic banks: BBV (19), Banesto (19), Banco de Fomento (11) and Banco Pastor (10), together with a state-owned bank, Banco

Table 1. *Spanish Companies (including Banks) Having the Largest Degree Centrality in 1993 (N = 190)*

Company	Industry	Ownership	Degree Centrality
Highest:			
BCH	Bank	Domestic	35
Iberdrola	Utility	Domestic	34
Fenosa	Utility	Domestic	31
Sevillana	Utility	Domestic	26
BBV	Bank	Domestic	19
Banesto	Bank	Domestic	19
Endesa	Utility	State-owned	17
Teléfonoica	Telecommunications	State-owned	13
Cepsa	Oil	Domestic	13
Banco Exterior	Bank	State-owned	11
Banco de Fomento	Bank	State-owned	11
Banco Pastor	Bank	Domestic	10
Tábacalera	Food & Tobacco	State-owned	10
Lowest:			
93 Companies with 0 degree centrality			
Summary Statistics:			
Mean	2.69		
Std Dev	5.51		

Exterior (11). This financial centrality pattern is consistent with other studies demonstrating that financial companies play a coordinating role in the corporate world (Allen, 1974; Mariolis, 1975; Pennings, 1980; Mizruchi, 1982; Mintz and Schwartz, 1985). A particular feature of the Spanish case is that financial centrality is concentrated specifically in banks. This reflects the fact that the development of the banking system preceded that of industrial firms in Spain.

After World War I, due to both exogenous factors and changes in the internal political economy, the number of banks almost doubled (Tortella and Palafox, 1984:83),¹² and banks became actively involved in the promotion of industrial activities. Moreover, in 1917, the establishment of automatic collateral lending, whereby the banks could obtain automatic collateral credit from the central state bank, Bank of Spain, for up to 90 per cent of their public purchases (Pérez, 1997), initiated the current relationships involving the government, the Bank of

Spain, the banking sector and industrial firms. These connections promoted a bank-financed industrialization model in which universal banks invested and benefited from industrial activity.¹³

The model of industrialization followed in Spain up to the Civil War was very much influenced by a *de facto* banking cartel, which by the 1930s was made up of the so-called 'Big Seven' banks.¹⁴ A turning point in the Spanish history was the Civil War of 1936–1939 which was followed by a shift to a new model of economic organization. Specifically, Franco's regime adopted a policy of economic autarky (1939–1959) that had two main objectives: rapid industrialization and economic self-sufficiency. In order to facilitate internal industrial growth and protect Spanish industry from the threat of foreign competition, Franco's government imposed severe restrictions on foreign trade and capital penetration. Hence, Spanish entrepreneurs had to adapt to the new economic circumstances characterized by heavy government intervention at all levels and a market closed to foreign capital and industrial products (Lieberman, 1982:165–198).

In the post-Civil War period, the Francoist regime actively promoted an oligopolist financial market. The passing of the 'Status Quo' Banking Law in 1946 evidenced the regime's intentions to strengthen the banking oligopoly, so that it would cooperate with the regime's economic policies. This law limited competition within the financial system by preventing the emergence of any other non-bank intermediaries, prohibiting the establishment of foreign banks, and placing many institutional restrictions on the founding of new domestic banks.¹⁵ Cooperation of the banking sector was considered necessary for the successful implementation of the autarky economic policies (Lukauskas, 1994). Thus, a vast expansion of private bank credit characterized the first two autarkic decades of the Franco regime. Yet, the shortage of financial resources within the private domestic banks forced higher state intervention in credit allocation. The result was a state-dominated, credit-based financial system that established the subordinate position that industrial elites occupy, relative to financial elites, within the economic policy-community, one that still persists in the Spanish economy (Pérez, 1997).

During the period of political transition and establishment of the new democracy (1977–82), the

economic and institutional reform goals of the neo-corporatist agreements among government, labor, and big business intended to liberalize the financial system, and thereafter to dismantle the oligopolistic structure of the Spanish financial market. This attempt failed, in part because central bank reformers sought to protect the interests of the domestic banking cartel. In addition, the Spanish government had very little room to maneuver given the political and economic fragility, and the unstable economic international environment.

Throughout the first years of the Socialist government (1982–88), financial practices exhibited continuity with the past, namely discretionary credit allocation. Only in the late eighties, with the impact of new international pressures, and particularly the Spanish entry into the EEC in 1986, were the dynamics of the financial system altered. Spain had to progressively adjust its national institutional parameters: capital market reform, regulation of foreign bank entry, and reform of official credit institutions were finally initiated. Yet, the supposed financial deregulation was more akin to financial nationalism in that it encouraged banking mergers among the large domestic banks in order to avoid foreign hostile takeovers (Revell Report).¹⁶ Another example of this movement towards financial nationalism is the creation of the major state-owned bank (Argentaria). By 1993, following international influences toward domestic financial deregulation, Spain had abandoned, albeit slightly, its practices of state interventionism in credit allocation. I argue, however, that the legacy of the privileged role of banks and consequent legal regulations, together with the traditionally underdeveloped stock market, account for banks' highly central position in the Spanish intercorporate network by comparison to that found in other countries.

The non-financial corporations with the highest levels of degree centrality are utilities, some of which are state-owned, together with other state-owned corporations. The private utility company, Iberdrola, with degree centrality 34, and the state-owned utility company, Endesa, with degree centrality 17 – together with their associated companies – controlled 80% of the electrical market in 1994. The other two privately owned utility companies in Table 1 also belong to the electricity generating industry: Sevillana (Compañía

Sevillana de Electricidad), with degree centrality 26, is a corporation associated with Endesa, and Fenosa (Unión Eléctrica Fenosa), with degree centrality 31, is a private electricity corporation partly owned by a German holding company (RWE).

Utility companies are similar to banks in their degree centrality. Whereas the above discussion details why financial institutions are expected to be especially central nodes in the Spanish intercorporate network, the reason why utility companies – and in particular electricity generating ones – have such high centrality in the Spanish intercorporate network requires some further clarification. The historical evidence shows that the electric industry first appeared in Spain at the beginning of this century, and soon became concentrated (Tamames, 1993; Tortella, 1994). These firms were principally Spanish-owned. After the Spanish Civil War and throughout the twentieth century, two parallel phenomena coincided: increasing sectoral integration¹⁷ and a high degree of state protectionism. Together, these led to the formation of large electricity companies involving substantial share holdings by the banks.

In the early 1980s, ‘the reorganization of the electricity industry was necessary as a result of the fragmented pattern of production, arising from the historical evolution of the industry, and as a result of the serious financial problems facing the industry’ (Salmon, 1995:153). Consequently, the state intervened by controlling electricity tariffs, compensating for variations in electricity costs, and promoting asset swaps and mergers. For instance, in 1992, Hidrola and Iberduero formally merged to create Iberdrola (the most central utility company in 1993), and in 1993, Endesa had incorporated many of the larger private companies. Moreover, the progressive liberalization of the energy market that occurred with Spain’s entry into the EEC gradually opened the door to increased foreign investment, thereby creating incentives for further industry concentration.

Finally, another category of enterprises with a very central role in the Spanish intercorporate network consists of state-owned corporations. This category includes some of the largest businesses in Spain. Table 1 shows the state-owned companies with degree centrality over 10: Endesa, the electricity generating company; Telefónica, the state-controlled

telecommunications monopoly; Banco Exterior, the state-controlled bank; and Tabacalera, the state-owned tobacco monopoly.¹⁸

The modern state-owned enterprise sector in Spain emerged as a result of economic autarky. The number of firms in this sector grew rapidly from the 1940s to the 1960s. Following this initial period of autarky, the state took over those private enterprises that were going bankrupt. Like banks, state-owned enterprises operated in an oligarchy. Moreover, to ensure the objectives of the economic autarky model of industrialization, Franco’s administration also created a state holding company, *Instituto Nacional de Industria* (INI, National Institute of Industry), to develop large-scale state industrial enterprises in those sectors that would not be appealing to the private industrial sector. INI also attempted to ‘make up’ for the inefficiencies of the existing financial system that was often unable to finance gigantic industrial investments (Martín Aceña and Comín, 1991). This effort to shift from a private capital model to a purely statist model of industrial development, or what could be interpreted as an attempt to restrict the banking sector’s influence over industry and achieve greater control over the industrialization process, was only partially achieved. Nevertheless, INI developed a network of state-owned enterprises specializing in basic industrial inputs, and promoted private companies that fit within the economic policy directives (Schwartz and González, 1978; Martín Aceña and Comín, 1991; Tortella, 1994). An example is the electricity industry which was considered a ‘priority’ sector. INI got directly involved in this sector by creating its own company, Endesa. Low governmentally-imposed electricity rates were another consequence of state interventionism in this concentrated industrial sector. All of these historical-structural factors explain the high degree centrality of state-owned companies and utilities.

How does the Spanish case compare to other national cases?

I next compare the Spanish case with previous studies of directorship interlocks in Germany (Continental model), Great Britain and the United States (Anglo-Saxon model), and Japan.¹⁹ These comparisons reveal that bank centrality varies across national cases.

Ziegler, Bender and Biehler (1985) studied German interlocking directorships in 1976 and found that banks were at the core of the German intercorporate network, with Deutsche Bank as the most central company.²⁰ Their study shows that the three largest commercial banks (Deutsche Bank, Dresdner Bank, Commerzbank) were at the centre of the German intercorporate network, along with a commercial bank specializing in industrial credit, a state-owned bank providing long-term credit for industrial reconstruction, and the two German largest insurance companies (Ziegler *et al.*, 1985:98). Windölf *et al.* (1996) conducted another investigation on German directorship interlocks in 1992 which provides evidence of the continued dominance of banks. They also demonstrate that 'banks are the firms that more frequently send representatives to the supervisory board of other firms' (*ibid.*, 1996:223). I attribute the centrality of German banks highlighted in these studies, to the attributes of the German financial system. This system typifies a bank-led financial model in which universal banks hold shares in non-financial corporations and are permitted to vote on behalf of these non-financial companies.

In their study, Ziegler *et al.* find that nine non-financial corporations stand out – together with financial corporations – at the core of the German intercorporate network. These non-financial corporations belong to the following industrial sectors: electrical engineering (Siemens, AEG), manufacturing of motor vehicles (Daimler, Volkswagen VAG), steel production (Thyssen), manufacturing of non-ferrous metals (Metallgesellschaft), chemicals (VEBA), mining and steel-producing (Ruhrkohle), and transportation (Hapag) (Ziegler *et al.*, 1985:98). All these economic sectors are highly capital-intensive industries relying mostly on banks for financing. Consequently, they establish tight inter-relations with financial corporations.

The Anglo-Saxon countries present a corporate network structure distinct from the Continental model. In 1976, the British intercorporate network of primary directorship interlocks 'was structured into loose spheres of influence centered around the major commercial banks and tied into a national community of interests' (Scott, 1987:222). Moreover, as Scott and Griff demonstrate, British banks exercised little control or co-ordination over other

economic spheres (Scott and Griff, 1985). The British business structure was loose, with a low level of directorship interlock centralization, and a lack of a core corporate component (*ibid.*:230).²¹ Stokman *et al.* (1985) reaffirm these findings, concluding that the British intercorporate network was the loosest of the ten national networks they compared. The historically modest involvement of British banks in the nation's economic development, and more specifically their limited role in industry financing are reflected in the pattern of British intercorporate relations. Thus, the limited financial centrality in the Anglo-Saxon model and the absence of industrial corporations at the core of the British intercorporate network (Scott and Griff, 1985; Windölf *et al.*, 1996), contrast with features found in the Continental model countries.

The United States corporate network is also a loosely integrated decentralized system.²² This is a common pattern in countries following the Anglo-Saxon model, characterized by market-led financial systems. Bearden and Mintz (1985) demonstrate that the American network in 1976 did not contain an integrated center, showing that 'the identification of the maximal subset of central firms with distance 2 or less produced a 12-corporation grouping which was not highly cohesive' (Bearden and Mintz, 1985:235). This group included nine financial institutions (including insurance companies), one telephone company (ATT), one motor vehicle company (General Motors), and one food company (Kraft). There is a debate about the role played by the commercial banks;²³ for the purpose of this comparison, however, the evidence indicates that while banks are centrally located institutions in the United States intercorporate network, they do not build the kind of tight directorship network seen in Continental model countries.

Japanese intercorporate relations are institutionalized into *keiretsu*. It is a network of cross-shareholdings and directorships with a bank and a trading company at the center (Best, 1990:179). Gerlach's (1992) study of sixty Japanese firms in 1980 concludes that financial institutions have a central position in the network and that most of the directorship and equity ties are sent by the financial rather than the industrial enterprises (Gerlach, 1992:92). Thus, the Japanese *keiretsu* shares some attributes with the German combine (i.e. a group

of enterprises). The difference between Japanese and German economic organizations is that the former include a broad representation of private corporations. Scott argues on the basis of his analysis of the 250 largest Japanese corporations in 1980, that in contrast to the Anglo-Saxon model, 'financial hegemony in Japan involved not so much a polyarchy of independent financials as an oligarchy of combines' (Scott 1986:202). These combines pursued coordinated investment policies and established commercial alliances amongst themselves. Similarly, Gerlach and his colleagues (Gerlach, 1992; Gerlach and Lincoln, 1992; Lincoln, Gerlach and Takahashi, 1992; Lincoln, Gerlach and Ahmadjian, 1996) agree with Scott that despite the importance of bank monitoring and controlling of the economy, financial institutions do not account for the whole dynamic in Japan. They suggest that since the late 1980s, financial networks within the *keiretsu* began to break down, thereby facilitating the development of alternative financial investment mechanisms and allowing greater independence of firms from group banks and insurance companies.²⁴

We can conclude from these comparisons that while banks are placed at the core of all these countries' intercorporate networks, their centrality varies considerably. Studies of the Continental and Japanese national cases show that banks have been remarkably central and highly embedded in their intercorporate networks. This is primarily due to traditional long-term credit relationships between banks and industrial firms, to underdeveloped stock markets, and to directorships coupled with ownership interlocks. In addition, the Spanish historical structural factors, and subsequent intercorporate outcomes indicate that Spain fits into the Continental model. Yet, Spain's network reflects the highly interventionist role of the state in banking and industry through a state-driven credit allocation financial system and economic policy regulations. Conversely, in Germany, intercorporate ties are largely orchestrated through banks, and in Japan, banking and industrial sectors are co-dependent. This is not the case in the Anglo-Saxon countries, whose networks reflect their historical entrepreneurial impetus: *laissez faire* governments, well developed capital markets, and legal constraints on bank practices. The above findings and comparisons are consistent with

Gerschenkron's thesis: banks and the state play a key role in the Continental model, while these factors are much less important in the Anglo-Saxon countries.

The other side of centrality: the network isolates

Although highly central companies are usually the focus of attention in studies of directorship interlocks, the 'isolates' are another interesting aspect of such networks. Isolates are the companies that have zero degree centrality, and therefore are outsiders in the intercorporate network. In the 1993 Spanish intercorporate network, the number of isolates among the 100 largest non-financial corporations is 64. When we add relations with the financial corporations into the network, the 64 per cent fraction of isolates among non-financial corporations decreases to 48 per cent; 93 companies are isolated in the overall intercorporate network. This decrease in the proportion of isolates accentuates the previously presented results by showing that Spanish banks are the 'big linkers.'

The majority of isolated Spanish companies are among the smaller ones in the data base (72 per cent of the non-financial isolates are ranked below the 50 top non-financial companies by sales, and 50 per cent of the financial isolates are ranked below the 30 top financial companies by assets). A puzzling finding, though, is that some firms with zero degree centrality are in the top tier of the 100 largest industrial companies, in particular among the 40 largest non-financial corporations. These large but isolated companies belong to three economic sectors: (1) motor-vehicle manufacturing, (2) foodstuff processing, and (3) wholesale trade. The main features of these sectors are the increasing presence of foreign capital, especially since 1986 (the date of Spain's entry into EEC), and consequently the high presence of foreign directors on their boards. For instance, the motor-vehicle and auto parts manufacturing sector, one of the leading industries in Spain, has had significant foreign investment since the 1950s when French companies Renault and Peugeot-Citroën were established in Spain. This rose in the 1970s when Ford, General Motors, and Nissan entered this sector. The food processing industry, which included 14 per cent of the 200 largest Spanish non-financial companies in 1992, is also dominated by subsidiaries of foreign multinationals such as

Danone (BSN), Nestlé, and Unilever. Most of the large retailing and wholesaling corporations such as Pryca, Continente and Alcampo are primarily French owned (El Corte Inglés is the major exception).

Spain has become an attractive host country for foreign direct investment (Campa and Guillén, 1996), and foreign-controlled companies constitute a centerpiece of the government's economic strategy in the 1980s (Pérez 1997). The results in my study suggest, however, that large Spanish companies with important shares of foreign-owned capital are peripheral in the Spanish intercorporate network when measured in terms of directorship interlocks. These companies have their own foreign channels of capital financing, and their board members rarely sit on other national corporations' boards.²⁵ This explains their low degree centrality in the overall Spanish intercorporate network.

What is the isolate network pattern in other national cases?

The Spanish isolate network pattern is consistent with that observed in the German case (Ziegler *et al.*, 1985) and the Japanese case (Lincoln, Gerlach, and Ahmadjian, 1996). For instance, in Germany, 62 out of the 195 largest non-financial companies (32 per cent) studied by Ziegler *et al.* (1985) were isolated. Among these isolates are foreign-owned companies and trading companies with chain stores (especially in the food industry). In particular, 'five of the 20 top-ranking industrial corporations, being foreign-owned, did not belong to the core but to the outer margin (Esso, Shell, and BP) or were even isolated (Opel and Ford)' (Ziegler *et al.*, 1985:100). The Anglo-Saxon case is in some aspects similar, yet it adds a further category, that of family-owned enterprises (more typical in the entrepreneurial models). For instance, in Great Britain '[those] companies which were least likely to have any interlocks were those where one particular interest held a majority of the shares. Many of these were family-owned concerns [...] but the majority were subsidiaries of foreign enterprises' (Scott and Griff, 1985:218). These findings show that the position of 'company isolates' is similar cross-nationally; and is largely attributable to foreign capital penetration.

Inter-industry directorship interlocks

The centrality analysis revealed the most central corporations in the Spanish intercorporate network. There, the unit of analysis was the firm. This section presents a summary picture of the overall inter-industry pattern of directorship interlocks. I have regrouped the 190 largest Spanish corporations (both financial and non-financial) into 16 different economic sectors following the Standard Industrial Codes (S.I.C.).²⁶ The adjacency matrix of interlocks within the 16 industrial sectors depicts the inter-industry corporate structure. These relationships are displayed in Figure 1.²⁷

In Figure 1, all the companies have been collapsed into their respective S.I.C. groups. Differences in thicknesses of the lines indicate the strengths of relationships (Krackhardt, Blythe and McGrath, 1995). The thicker the line, the higher the number of inter-sectoral directorship interlocks. From Figure 1, we see first that the number of thick lines from banks to other industrial sectors reaffirms the centrality of banks. Banks are principally connected with insurance, utilities, construction, and chemical (mostly oil sector) followed by cement and communication. The close connection between banks and insurance is to be expected, since insurance companies commonly have their distribution channels through banks.

The close ties among banks and the other economic sectors mentioned are interesting because the construction and utility sectors contain many state-owned or state-controlled companies, and the communication sector includes companies such as the state telecommunications monopoly (Telefónica), and the radio-television state-owned company (RTVE). The historical alliance between the state and the big banks in Spain, and an underdeveloped stock market explain these outcomes.

Wholesale, food, and cars are economic sectors at the periphery of the network. As we have discovered in the centrality analysis, these sectors are made up principally of foreign-owned corporations that are not very involved in the Spanish intercorporate network. These industrial sectors at the periphery of the network tend to be either less financially dependent on domestic banks (i.e., motor-vehicles) or less capital-intensive (i.e., services).

Although there is an ongoing process of concentration of firms within the heavy industry sectors, a

LIGHT-INDUSTRY

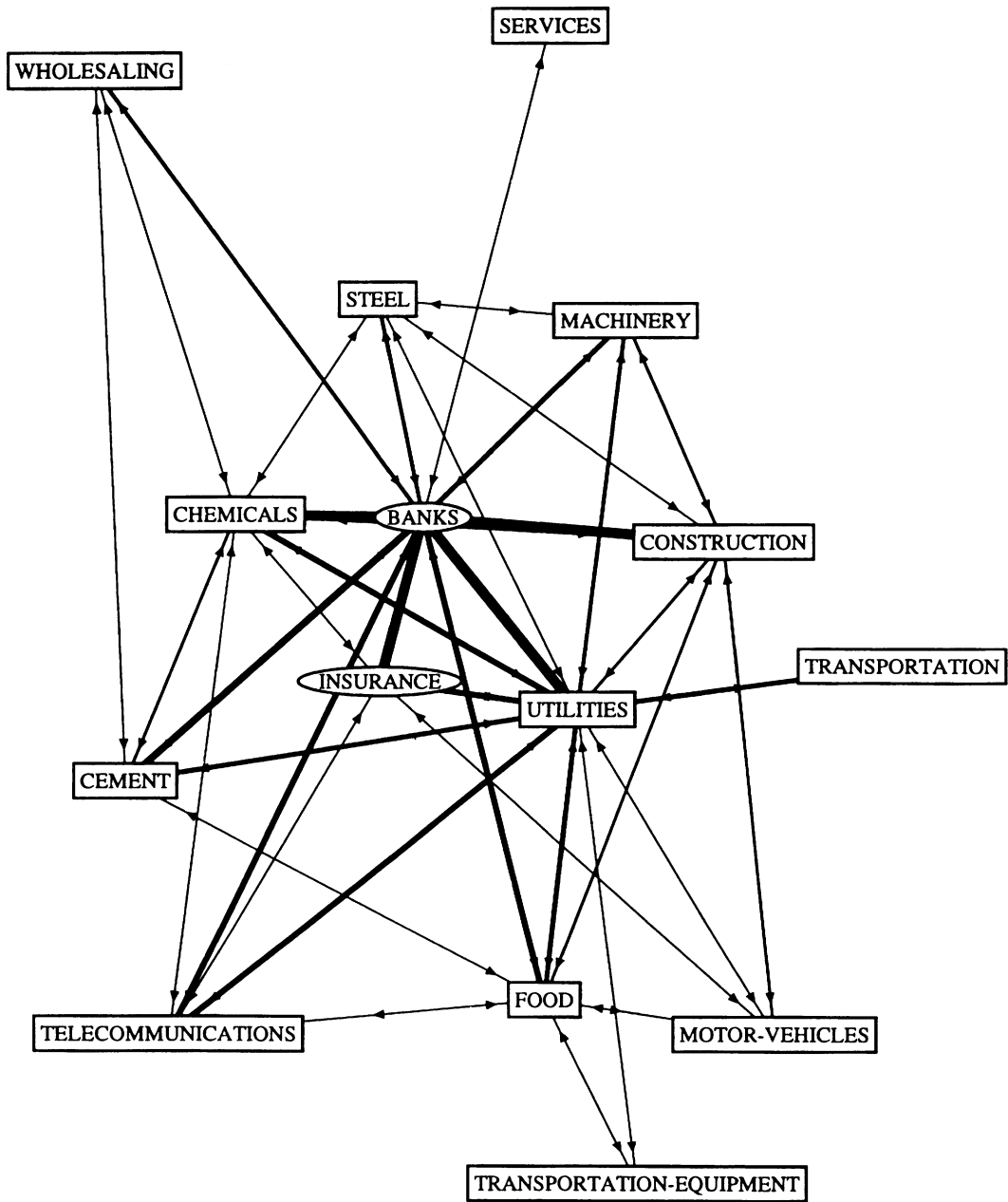


Figure 1. Spanish Inter-Industry Directorship Interlocks in 1993.

number of firms opt for tight interlocking directorships as an alternative means of minimizing transaction costs (Williamson, 1985, 1975) or as a co-optive strategy (Burt, 1980; Pfeffer and Salancik, 1978). Moreover, state intervention strategically promoted rapid economic development in most of these industries. The Spanish model of economic organization resembles that of Germany in that heavy industry companies are highly interlocked with each other (i.e., the intra-sectoral interlocks) and with the banks (Kocka, 1980; Ziegler *et al.*, 1985; Windölf *et al.*, 1996).

For light industry, the process was the reverse. As we see in Figure 1, light industries (i.e. paper, leather, etc.) are completely isolated from the other economic sectors in the network.²⁸ The traditional independence of light industries from the state and the banking system, and their entrepreneurial character (family enterprises) are features similar to those conditions that Gerschenkron considers necessary for the 'big spur' in economic development to take place. In particular, light industries located in the north-east part of Spain repeatedly attempted to develop an industrial base independent from the banking system (Vicens Vives, 1958). They followed the British path of industrialization: the light industrial sector has been largely independent from bank financing, state intervention, and foreign capital.

2. Business Groups

The network analysis I report here examines the interlock data for the presence of cohesive business groups. I begin by using component analysis to identify several mutually exclusive subgroups of interlocked corporations. Using the results, I ask whether the centrality results can be explained by intra-sectoral or inter-sectoral interlocks. I also examine the degree of involvement of the state versus banks in the Continental model cases (i.e. Germany and Spain).

Component analysis groups corporations into subgroups (or components), such that all the corporations within each subgroup are connected to one another via one or more direct or indirect paths, but no paths run to corporations outside the subgroup. That is, all corporations in a subgroup are linked, either directly or through

chains of intermediaries. A component analysis results in one or more separate subgroups, and possibly a number of isolates (Scott, 1991:104-117; Wasserman and Faust, 1994:109-110).

The component analysis of the largest 190 Spanish companies in 1993 identifies 106 connected corporations forming nine business subgroups of two corporations or more: one large component including 72 corporations, and eight other, smaller, components. These subgroups consists of tightly interlocked non-financial and financial corporations.

The corporations in the latter eight components are listed in Table 2. Almost all exhibit a very specific pattern; specifically most components contain at least one bank. The exception, Component 2, consists of two foreign-owned corporations sharing the same President on their boards. The connection between banks and insurance companies is another characteristic of these subgroups. Many of the insurance companies in Spain are controlled by banks, providing an extensive distribution network for selling insurance (insurance companies that are bank filials are indicated by asterisks in Table 2) (Salmon, 1994:229).

We can also note a strong penetration of foreign capital in the insurance industry (see components 3, 5, and 8). Mapfre, a domestic multinational insurance group in component 9, is one of the few exceptions. Component 3 consists of two state-owned steel companies (Ensidesa and Altos Hornos de Vizcaya) under the management of the same state-owned group. Banco Popular has a tie with Ensidesa and controls 66% of Banco de Andalucía and 90% of Banco de Galicia. Component 6 is the result of increasing foreign entry in Spanish banking. In 1993, Deutsche Bank became the largest foreign bank operating in the retail banking market throughout the acquisition of Bancotrans and Banco de Madrid.

It is not easy to characterize the largest business subgroup (Component 1 in Table 2) as it contains 72 connected corporations. I examined this component by conducting a cluster analysis of its 72 corporations. The complete-link, hierarchical clustering analysis²⁹ revealed eight clusters of closely interlocked corporations that included at least three corporations per cluster. The cluster memberships are shown in Table 3. We can see that, as

Table 2. *Components of the Interlock Network of the Largest Spanish Corporations in 1993 (N = 190)*

Rank/Company	Industry	Ownership
Component 1 72 corporations (Table 3)		
Component 2		
(14) Ford	Motor-vehicle	Foreign (Ford, USA)
(178) Plus Ultra	Insurance	Foreign (Norwich Union, UK)
Component 3		
(21) Ensidesa	Steel	State-owned
(23) Altos Hornos de Vizcaya	Steel	State-owned
(108) Banco Popular	Bank	Domestic
(152) Banco de Andalucía	Bank	Domestic
(156) Banco de Galicia	Bank	Domestic
(166) Mutua Madrileña Auto.	Insurance	Foreign
Component 4		
(109) Banco de Sabadell	Bank	Domestic
(176) Bansabadell Vida ^a	Insurance	Domestic
Component 5		
(118) Ibercaja	Savings Bank	Domestic
(182) Intercaser	Insurance	Foreign (Skandia Int., Sweden)
Component 6		
(125) Bancotrans	Bank	Foreign (Deutsche Bank, Germany)
(144) Banco de Madrid	Bank	Foreign (Deutsche Bank, Germany)
(175) DB Vida ^a	Insurance	Foreign (Deutsche Bank, Germany)
Component 7		
(137) Caja General de Granada	Savings Bank	Domestic
(158) Banco Hipotecario	Bank	State-owned
Component 8		
(150) Citibank	Bank	Foreign (Citibank, USA)
(183) Aegon	Insurance	Foreign (Aegon, Holland)
Component 9		
(161) Mapfre	Insurance	Domestic
(167) Mapfre Vida	Insurance	Domestic ^a

^aindicates an insurance company affiliated with a bank.

Note: The numbers in parentheses correspond to the ranking of a corporation in my data set. Numbers between 1 and 100 refer to non-financial corporations, between 101–160 to banks, and between 161–190 to insurance companies. For example, (125) indicates that Bancotrans is the 25th largest bank according to assets in my data set.

in Table 2, all but the first of these clusters include a bank. Clusters 2, 3 and 7 each contain one of the five largest domestic banks of Spain (BBV, Banesto and BCH, respectively). Cluster 4 consists of the main state-owned bank (Banco Exterior), one of its subsidiary state-owned banks (Banco Atlántico), and the state-owned tobacco monopoly (Tabacalera). Cluster 6 is contains corporations in the March banking group and reflects its specialization on wholesaling. All of these clusters are also intra-sectoral connections.

Figure 2 plots all of the 72 companies of Component 1 in Table 2, showing the strength of connectedness through directorship interlocks by the thickness of the lines connecting companies. Financial companies are indicated by diamonds, utility companies by ellipses, and the remaining companies by rectangles. State-owned companies are marked with asterisks. Companies falling in clusters in Table 3 are also identified by the numbers near them. The clusters including the three main banks (Clusters 2, 3, 7 and 8) are at the center of the figure,

Table 3. *Companies in Component 1 grouped together by Complete-Link Hierarchical Clustering, 1993 (N = 72)*

Rank/Company	Industry	Ownership
Cluster 1		
(9) Renault	Motor-vehicle	Foreign (Renault, France)
(56) Huarte	Construction	Foreign (Impresit, Italy)
(84) Ebro	Food	Domestic
Cluster 2		
(24) Sevillana	Utility	Domestic
(101) BBV	Bank	Domestic
(4) Iberdrola	Utility	Mix private/state
Cluster 3		
(25) BP España	Oil	Foreign (BP, Great Britain)
(82) Valenciana de Cementos	Cement	Foreign (Cemex, Mexico)
(105) Banesto	Bank	Domestic
Cluster 4		
(6) Tabacalera	Food&Tobacco	State-owned
(111) Banco Exterior	Bank	State-owned
(121) Banco Atlántico ^a	Bank	State-owned/Foreign
Cluster 5		
(22) Acerinox	Steel	Domestic
(64) Siemens	Machinery	Foreign (Siemens, Germany)
(53) Agromán	Construction	Domestic
(134) Banco Guipuzcoano	Bank	Domestic
Cluster 6		
(99) Simago	Wholesaling	Foreign (Dairy Farm, Bermuda/UK)
(10) Pryca	Wholesaling	Domestic/Foreign (March/Correfour)
(157) Banca March	Bank	Domestic
(124) Banco Urquijo ^a	Bank	Domestic (March Group)
Cluster 7		
(2) Telefónica	Telecommunications	State-owned
(18) Fenosa	Utility	Domestic
(102) BCH	Bank	Domestic
(163) Vitalicio ^a	Insurance	Domestic (BCH Group)
Cluster 8		
(15) Fomento de Construcciones	Construction	Domestic
(20) Citroën	Motor-vehicle	Foreign (Citroën, France)
(76) Roca	Construction materials	Domestic
(95) Tudor	Machinery	Domestic
(127) Banco Zaragozano	Bank	Domestic

^aindicates an insurance company/bank affiliation with another bank.

Note: The numbers in parentheses correspond to the ranking of a corporation in my data set. Numbers between 1 and 100 refer to non-financial corporations, between 101–160 to banks, and between 161–190 to insurance companies. For example, (105) indicates that Banesto is the 5th largest bank according to assets in 1993.

43 companies were not placed in any cluster containing 3 or more companies.

the cluster of the March Group (Cluster 6) is on the upper left, while clusters 1 and 5 lie at the bottom of the Figure 2.

The component analysis and hierarchical clustering findings confirm the previous centrality analysis

results in that banks are seen to be central actors in the network. In addition, we see that the most cohesive business groups are centered around the largest Spanish banks. These are at the center of the network partly because they build links among themselves (as

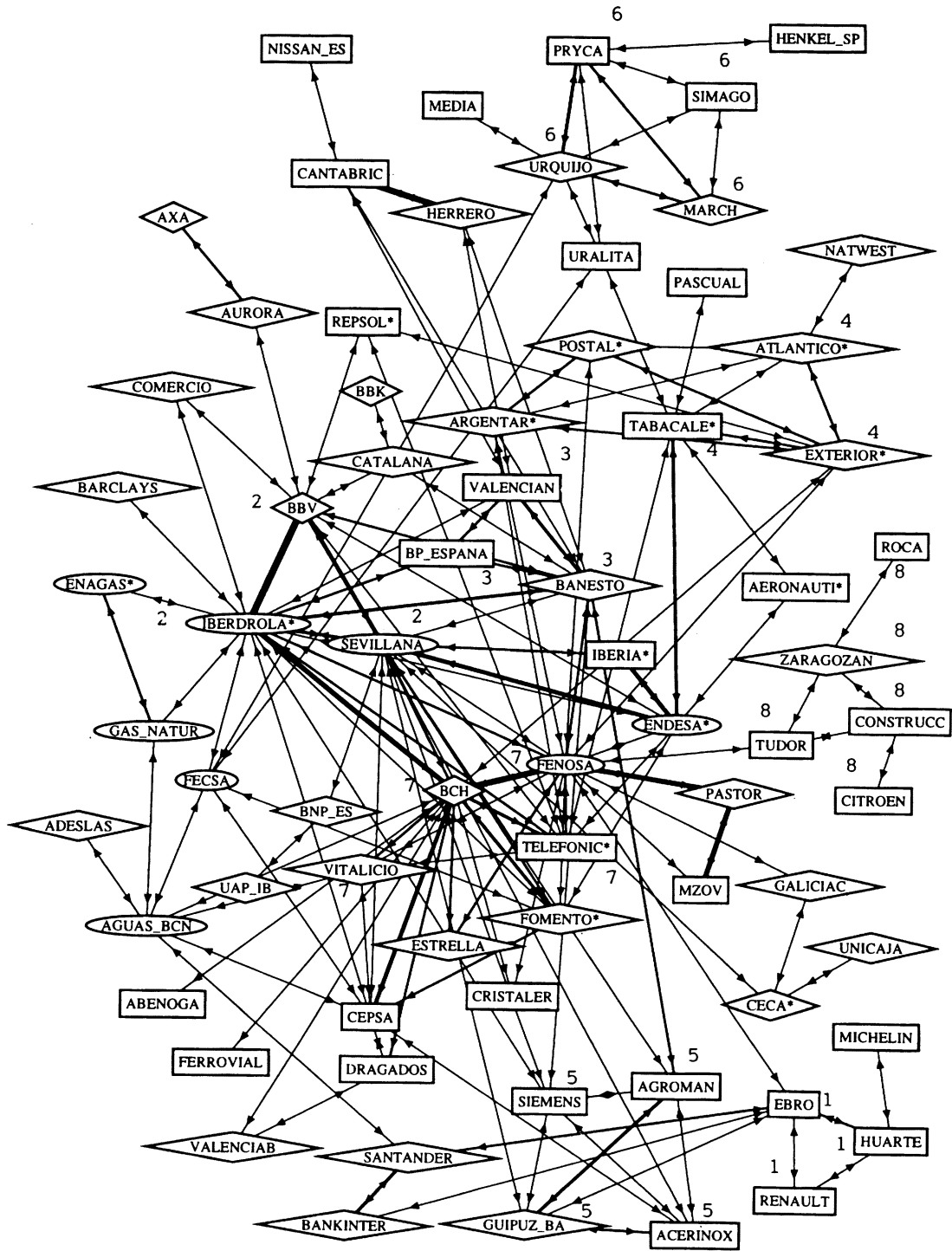


Figure 2. Directorship Ties among the 72 Spanish Companies in Component 1 (Table 2), with Clusters (Table 3) indicated.

clusters 4 and 6 in Table 3), but largely because they are 'big linkers' establishing directorship associations with industrial companies. Capital-intensive firms and utilities belong to these cohesive business subgroups. Hence, we can conclude that the historical-structural influences shaping the Spanish economy are reflected in the patterning of strong inter-directorship interlocks. The Spanish economic structure is built on tight intercorporate relations, facilitated by direct state intervention, loose anti-trust regulations, and a privileged controlling banking system. Companies and sectors on the periphery reflect the legacy of Spain's delayed integration into international markets.

How do the Spanish clusters compare to other national cases?

In Germany, Ziegler *et al.* find that 'there were two larger clusters: a group of 35 predominantly privately owned companies (*Thyssen*) and a group of 30 mainly state- or union-owned companies (*VEBA*)' (Ziegler *et al.*, 1985:95). In contrast to the Spanish case, in Germany there is a sharp line separating private and state-owned corporations. Yet, as in the Spanish case, in Germany 'banks act more like the integrators cross-connecting industrials from various economic sectors and other fractional interests' (*ibid.*, 1985:110). Windölf *et al.* (1996) report that most directorship interlocks are concentrated within, rather than between, sectors, and that German banks act as 'big linkers' by sending directors to company boards in other economic sectors.

In Great Britain, the analysis of the 1976 network of primary directorship interlocks reveals five clusters in which financial corporations, mostly banks, are central points. Scott and Griff suggest that these clusters 'were linked together through the "bridging" role played by a number of major industrial companies and two consortium banks' (1985:226). Likewise, in 1992 most of the network associations are between firms in the financial and non-financial sectors, and British banks received directors from other sectors on their board (Windölf *et al.*, 1996:223). The non-financial board members were the 'linkers,' who joined firms in different sectors. Yet, the authors studying the British case find it difficult to uncover a core component in the intercorporate network, as the density of the overall network is low.

Research on interlocking directorships in Japan also highlights the central position held by financial institutions: 'block composition among the industrial firms reflects market patterns of clustering based on alliances of affiliated firms, or *keiretsu*... where banks are coordinators of specific subsets of affiliated firms' (Gerlach, 1992:135). Unlike in Great Britain, Japanese financial corporations send the vast majority of directors to non-financial sectors, and as in the Spanish case. Conversely, intra-industry ties in Japan are almost entirely absent. Japan's historical legacy from the prewar period, its regulatory environment, the relatively well-ordered structure of relationships among highly differentiated firms in a *keiretsu* (such as group presidents' councils), and the corporate culture of sharing industrial risk and reducing performance variability among group members, are critical determinants shaping Japan's contemporary corporate network structure.

Conclusion

The results of this research confirm that looking at historical-structural factors together with intercorporate relations is a fruitful way in which to understand the underlying processes shaping the structure of the economy in a given country. This study describes and analyses Spanish intercorporate relations (as indicated by interlocking directorates), comparing them, when possible, with results of previous studies of directorship interlocks for other countries. In doing so, I accomplish three goals: First, I add to the current literature on intercorporate networks by providing an analysis of a new national case: Spain. Second, I show how historical-structural analysis complements network analysis by revealing processes, formerly unaddressed, that lead to the visible pattern of intercorporate ties. Third, I conduct a systematic comparison of different national cases, showing that results of interlock studies trace the influence of historical-structural factors. I derive the factors that I employ from two paradigms: (a) Gerschenkron's historical structural hypotheses, and (b) the three general models of corporate structure: Anglo-Saxon, Continental, and Japanese.

The centrality analysis shows that large financial institutions, namely banks, utility companies, and state-owned companies, lie at the core of the intercorporate network in Spain. However, this analysis does not provide information about whether these corporations are central due to intra-industry, or inter-industry interlocks. The component and hierarchical clustering analyses indicate that network ties are (1) mostly inter-industry, and (2) led by banks.

The empirical evidence for the Spanish case verifies Gerschenkron's historical structural hypothesis, in that the Spanish corporate structure is led by financial corporations and state-owned non-financials. The late industrialization process in Spain influenced its intercorporate structure. Spain, as a late-comer, needed to undertake a rapid industrialization process in order to 'catch up,' and the capital accumulation required in the basic industrial sectors could only be provided by banks with the necessary incentives from the state. The Franco government continued to provide privileges to banks, and created a state industrial holding (INI) to promote industrialization. In addition, the economic isolation of the autarkic period induced Spanish capitalists to reinforce their already close ties with one another, and consequently to build multiple directorship interlocks.

With Spanish democratization, and more recently, the country's inclusion within the EEC, financial liberalization has resulted. This has encouraged non-financial corporations (i.e. utilities) to progressively concentrate, state-owned corporations to slowly privatize, and large banks to merge (Revell Report) in order to become more internationally competitive. With the liberalization of markets, foreign capital has increasingly entered, particularly in the automobile, service and wholesale sectors. These economic sectors tend to have a peripheral position in the Spanish intercorporate network because of their independence from the Spanish banks and state. Domestic companies in light industry are isolates in the Spanish intercorporate network due to the financial autonomy traditionally maintained by these less capital-intensive companies.

This study shows that the Spanish intercorporate structure fits into the Continental model. Indeed, except for the light industries, the Spanish case is at

the opposite end of the spectrum from the Anglo-Saxon model. The prominent role of the banks has been persistent, and is accentuated by the underdeveloped stock market and the barriers that inhibit the entry of foreign banks. Spain's intercorporate structure also has similarities with Japan's, since state regulatory intervention has been crucial in shaping that structure.

Notes

1. This research is a partial response to the calls for further research into these questions posed by Gerlach (1992), Granovetter (1994), and Fligstein *et al.* (1995).
2. There are many studies of 'interlocking directorates,' especially for the USA (e.g. Burt, 1983, 1980; Pennings, 1980). Yet there are very few comparative studies in this field: Stokman *et al.* (1985) conducted a research project that examined the structure of interlocking directorates in ten countries; Scott (1986) compared the structure of corporate networks in Britain, Japan, and the USA; Useem (1984) contrasted the American and British inner circles; and Windöfl and Beyer (1996) examined the recent capital and interlocking directorate networks among the largest German and British firms. The study from Stokman's (1985) 'Research Group of Incorporate Structure' is the most complete investigation on comparative interlocking directorships. The excellence of this research lies in its consistency, which allows for robust comparisons. The database for each country includes the 200 largest non-financial corporations by turnover and the 50 largest financial corporations by assets in 1976. The only limitation of this comparative study is that Stokman *et al.* tend to focus the data for the different national cases separately, rather than providing a systematic comparative discussion.
3. Gershenkron refers to 'backwardness' as a relative term presupposing the existence of more advanced countries, such as the UK, France, and the USA.
4. Cf. Gershenkron (1962); Barsby (1969); Syllan and Toniolo (ed.) (1991).
5. On the Japanese model, I refer specifically to the following studies: Hamilton and Biggart (1988); Gerlach (1992); Gerlach and Lincoln (1992); Morikawa (1992); Lincoln, Gerlach, and Takahashi (1992); Lincoln, Gerlach and Ahmadjian (1996).
6. The *keiretsu* emerged as a prolongation of the *zaibatsu*, and as a defensive strategy against the fear of takeovers. *Zaibatsu* (e.g. Mitsui, Mitsubishi, and Sumitomo), large

- financial and industrial family enterprise groups closely allied to the state and characterized by exclusiveness ownership and that had supported the Japanese war effort, were broken up by the 'dissolution' and anti-trust measures of the American occupying powers after the war. However, 'several years after the post-World War dissolution of the *zaibatsu*, groups of major enterprises once belonging to the same *zaibatsu* emerged, and they continue to be active today' (Morikawa, 1992: 247).
7. 'The willingness of state financial institutions to back industrial debt/equity ratios at levels unheard of in the West was a critical ingredient in the expansion of new industries' (Evans, 1995: 48).
 8. For example, in Anglo-Saxon countries, fully developed and diversified capital markets have played a much more significant role in capital formation than in continental European countries and Japan, where banks and states have at least partly assumed the role of financial markets.
 9. Pennings (1980); Burt (1980, 1983); Mizruchi (1982); Stokman, Ziegler, and Scott (1985); Mintz and Schwartz (1985).
 10. The 'Big Seven' Spanish banks are small by international standards, with the largest among them, the Banco de Bilbao y Vizcaya, ranking 71st in the world in 1989 according to 'Spanish banks: best of the bunch', *The Economist*, 6 April 1991. Furthermore, only two non-financial Spanish corporations figure among the 100 largest world corporations in 1993, ranked by sales. These are: the state-owned industrial holding INI (ranked 61st), and the oil company Repsol (ranked 65th), according to *Anuario El País 1995* and *Fortune*, 28 August 1994. A complete list of companies included in this research can be obtained from the author on request.
 11. Breiger's axioms for membership network are: (1) directors who are actors in the one-mode network are with equal legitimacy viewed as connection in the dual picture; (2) the matrix will be symmetric because if two companies share at least one director, they are mutually related (1974: 184).
 12. Tortella and Palafox add that these new banks' 'paid-in capital in constant pesetas more than doubled, and the loans portfolio increased accordingly' (1984: 83). Moreover, 'during the first third of the twentieth century... several of the great banks in the Spanish economic history emerged [*Banco Hispano Americano* 1900; *Banco de Vizcaya* 1902; *Banco Español de Crédito* 1902; *Banco Urquijo* 1918; *Banco Central* 1919; *Banco Popular* 1926; and *Banco Exterior* 1929' (Tortella, 1994: 331). (Unless otherwise indicated, all translations are by the author.)
 13. Yet it is also argued that the new mixed banking system, which endowed the symbiotic relationship between banks and the industrial sector, prevented the build-up of the necessary internal capacity for long-term industrial investment strategies. See Hardach (1984).
 14. The 'Big Seven' banks were: Banco Español de Crédito (Banesto), Banco Hispano Americano, Banco Central, Banco de Bilbao, Banco de Vizcaya, Banco de Santander, and Banco Popular.
 15. See Muñoz, 1970; Tamames, 1977; Velarde, 1988; Torrero, 1991. It is also claimed that another reason that Franco maintained the banking status quo was that he wanted to reward banks for their financial backing of the Nationalist faction during the Civil War that led to his victory.
 16. The mergers of the Banco Central and Banco Hispano Americano into Banco Central Hispano (BCH) and Banco Bilbao and Banco Vizcaya into Banco de Bilbao y Vizcaya (BBV) are the results of government-encouraged banking mergers.
 17. The increasing sectoral integration was mostly driven by economies of scales, the seasonality of production and consumption, and the absence of competition.
 18. The other company in Table 1 is Cepsa. This is the largest oil company within the private sector and is primarily owned by BCH and the French company Elf-Aquitaine.
 19. There exist very few comparative studies on directorship interlocks. I refer mainly to the ten-country-comparative network study from the 'Research Group on Incorporate Structure' compiled by Stokman *et al.* (1985), based on data collected in the late 1970s. I also refer to Windölf and Beyer (1996) for Germany and Great Britain, Scott (1986) for Britain, the United States, and Japan, and Gerlach *et al.* (1992, 1996) for Japan.
 20. Ziegler *et al.*'s (1985) study uses the concept of degree centrality when referring to 'central companies' because they look at the number of companies directly linked through directorship interlocks. For instance, Deutsche Bank was directly linked to 66 other companies out of the total of 325 corporations.
 21. From a historical perspective, 'in 1904 the centre [of the British incorporate network] included only two companies, in 1938 it included seven companies and in 1976 there were nine companies' (Scott and Griff, 1985: 222).
 22. See Dooley, 1969; Pennings, 1980; Burt, 1983; Mintz and Schwartz, 1985; Bearden and Mints, 1987.
 23. Bearden and Mintz suggest that 'bankers themselves do not play a corresponding role,... instead,

outsiders i.e. board members without executive positions in the corporations, are responsible for the cohesion of the system: they form 54.4 per cent of the interlocks in the 1976 network' (Bearden and Mintz, 1987: 192). Individuals affiliated with very large corporations and retired executives are the heart of the US corporate network (Bearden and Mintz, 1987; Scott and Griff, 1985).

24. The banking collapse accelerated the deregulation of the stock market and the establishment of a corporate bond market (Lincoln, Gerlach, and Ahmadjian, 1996: 81).
25. 'The motor-vehicle industry... demonstrates how foreign investment transformed a backward industry oriented to the domestic market into a modern internationally integrated industry... Equally, it demonstrates how major investment decisions affecting the Spanish economy are now made according to the corporate goals of multinational companies headquartered outside Spain: foreign companies controlling all car assembly (following the sale of Seat and Enasa in 1989) and 70 per cent of motor-vehicle component manufacturers' (Salmon, 1995: 192).
26. The 16 different economic sectors following the Standard Industrial Classification Codes, (SIC codes in parentheses) are: Food and Food Processing (01–09, 20–21); Construction and Contracting (15–17); Light Industries: Textile and Leather (22–23, 31) and Wood, Paper and Printing (24–27); Chemicals (includes Chemicals and Petroleum) (28–30); Cement (includes stone, cement, clay, and glass) (32); Steel: Steel and Iron (33–34); Machinery (17, 35–36, 38); Cars: Motor Cars (371); Other Transportation Equipment (37); Transportation (40–47); Communication (48); Public Utilities (49); Wholesaling and Retail Trade (50–59); Banks; Insurance Companies (61–67); Services (70–89).
27. The graph was constructed with KrackPlot 3.0 (Krackhardt, Blythe, and McGrath, 1995).
28. Contrary to some of the isolates described in the previous section, i.e. motor-vehicles, food, and wholesaling, light industries do not include many of the largest 100 non-financial Spanish corporations.
29. Complete-link hierarchical clustering, as opposed to single-link clustering, defines the distance between two clusters as the largest dissimilarity between members (Borgatti, Everett, and Freeman, 1992: 178). Complete link produces collections of companies in which all pairs are no less similar than the criterion value (i.e. sharing a director) (Wasserman and Faust, 1994: 381). This approach is advantageous

because it generates relatively compact subgroups. See also Scott (1991); Marsden and Lin (1992).

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Author's Address

Department of Sociology, William James Hall, Harvard University, Cambridge, Mass. 02138, USA. Tel: 617-496-3912; fax: 617-496-5794; email: aguilera@wjh.harvard.edu.

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