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Co-operative capitalism: corporate networks in Germany and Britain*

ABSTRACT

This study examines the capital network (ownership) and the network of interlocking directorates among the 623 largest business firms in Germany and the 520 largest in Britain. Three major differences are identified in the structure of these networks in the two countries: (1) In Germany ownership is highly concentrated, i.e., shareholdings – generally by the non-financial sector – tend to be sufficiently large to allow the owners to dominate the firm. In Britain ownership is much less concentrated, with almost half of all shareholdings – generally by the financial sector – amounting to less than 5 per cent of company stock. (2) In Germany – in contrast to Britain – the network of interlocking directorates is closely related to the capital network, i.e., it serves to enhance the power of the owners. (3) In Germany – in contrast to Britain – both networks are concentrated within the same industry, i.e., potential competitors are associated with one another. Germany thus illustrates 'co-operative capitalism' whereas Britain exemplifies 'competitive capitalism'.

People of the same trade seldom meet together, even for merriment and diversion, but the conversation ends in a conspiracy against the public, or in some contrivance to raise prices.

(A. Smith 1979[1786]: 232)

1 REGULATED COMPETITION

According to Chandler (1990), the development of capitalism at the end of the nineteenth century was based upon different forms of market regulation: the USA exemplifies a pattern of competitive capitalism whereas Germany was a model of co-operative capitalism. In his analysis of the differing course that capitalism was subsequently to take in the two countries, Chandler (1990: 395) identifies two events that set the juridical seal on the different patterns of development. One was the passage of the Sherman Act in 1890, which prohibited 'conspiratorial' agreements among companies such as those establishing price cartels. The other was the 1897 verdict of the German Supreme Court (*Reichsgericht*) upholding

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cartel agreements as legally binding contracts under civil law, even in cases involving a restraint of trade. Thus, intercompany agreements on pricing and supply were enforceable by the courts in Germany but were punishable by law in the USA.

Enactment of the Sherman Act in itself by no means consummated the characteristic pattern of capitalist competition in the USA. Violations of the Act continued and often were not even prosecuted either by the administrative or by the judicial branch of government (Gellhorn 1986: 27). Nevertheless, this Act did serve as the basis for a series of subsequent laws[1] that progressively institutionalized the competitive form of capitalism throughout the USA and proscribed the co-operative form which characterized the market in Germany.

In Germany, the Supreme Court verdict confirming the binding force of price cartels did not mark the beginning of such agreements, but those which had existed previously proved unstable, lacking the force of law behind them. By the inter-war period the 'regulated competition' of cartels had become a fully legitimate and accepted form of market organization in Germany, and virtually every sector of the country's economy was in fact subject to cartel regulation. In 1931, for example, the Economics Ministry registered some 2500 cartels (Feldkirchen 1988: 118). Furthermore, this restriction of economic competition was seen as being in the public interest.[2] In an address before the 'Verein für Socialpolitik'[3] Gustav Schmoller (1906: 249), a leading German economist, summed up the German attitude thus: 'I have always maintained that economic freedom is a blessing only in certain areas, and that ultimately only moderate, sometimes even substantially regulated, competition is healthy.' Abelshauser (1984) even describes Imperial Germany as the first 'post-liberal' state, having succeeded in combining co-operation and competition as well as corporatist regulation and economic innovation.

Chandler traces the different priority associated with competition and co-operation in the two countries to the export orientation of German firms as opposed to the concentration upon domestic market in the USA. The domestic market that American firms faced was large enough that efficient mass production and marketing strategies would generally suffice to guarantee corporate success, and they therefore usually limited their concentration to this market. Such was not the case in Germany, however, where the relatively small size of markets *forced* firms to compete for survival on the world market; here they were under constant pressure to prove their competitive efficiency (Newman 1964). Thus, the cartel agreements that German firms entered into *nationally* represented only one aspect of their *international* survival strategy: cartels were 'internally' co-operative and 'externally' aggressive.

Chandler's view finds support through comparison with another country, Japan, whose rise to economic superpower status likewise rested upon an export orientation. Until the Second World War relations among Japanese companies were dominated by the six large *zaibatsu* –groups of

co-operating firms in various sectors that were under the common leadership of a single clan. Following the War, the American occupation authorities dissolved these corporate groups. However, in the 1950s they managed to recombine, albeit with more autonomy than previously, into groups referred to now as *keiretsu* (Morikawa 1992). As in Germany, regulated competition became an accepted form of market organization, as the pressure that firms faced to look outward increased their willingness to co-operate on the domestic market – what Gerlach (1992) refers to as 'alliance capitalism'. Only the institutions through which the competition is regulated differ between the two countries; in Japan it is the *keiretsu* while in Germany it is the combine (*Konzern*).

Nevertheless, both the *keiretsu* and the combine represent forms of corporate networks that facilitate intercompany co-operation and the regulation of competition. It is the thesis of the present study that corporate networks in Germany (and in Japan) demonstrate one form and those in Britain (and the USA) another, and that the former tends to be more co-operative and the latter more competitive. German cartels have been superseded by corporate networks which are modernized forms of a regime of regulated competition. These networks may be characterized by a limited number of variables, such as network configuration, concentration of ownership and type of owner.

In the following sections an analysis of corporate networks in Britain and Germany will be presented. A data base has been collected on capital networks and on interlocking directorates for the 623 largest German firms and the 520 largest British firms. The next section examines the concept of network configuration and the subsequent analysis compares national networks in terms of ownership concentration and type of owner. It follows then an interpretation of interlocking directorates in both countries. To extend the comparison, data for Japan and the USA were included in some sections, but only where possible on the basis of a secondary analysis.

2 THE STRUCTURE OF CORPORATE NETWORKS

The corporate network is an organizational form that has grown up 'between' markets and hierarchies and which possesses a 'structure' just as markets and bureaucracies do. Bureaucracies can have centralized or decentralized structures, and flat or steep hierarchies; markets can be characterized by perfect competition or by oligopoly. A number of the various organizational structures that have developed for corporate networks are illustrated below.

Figure Ia presents a *clique*, in which each company is tied to every other company through a series of reciprocal relationships. Cliques show a high degree of integration as a result of the multitude of relationships obtaining among the participants (density). If the capital shares each

FIGURE I:

FIGURE Ia : *Reciprocal clique*

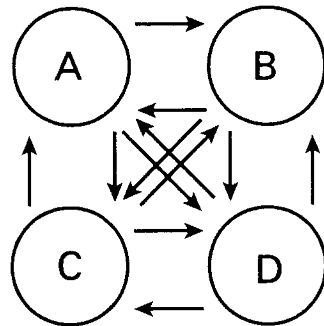


FIGURE Ic : *Pyramid*

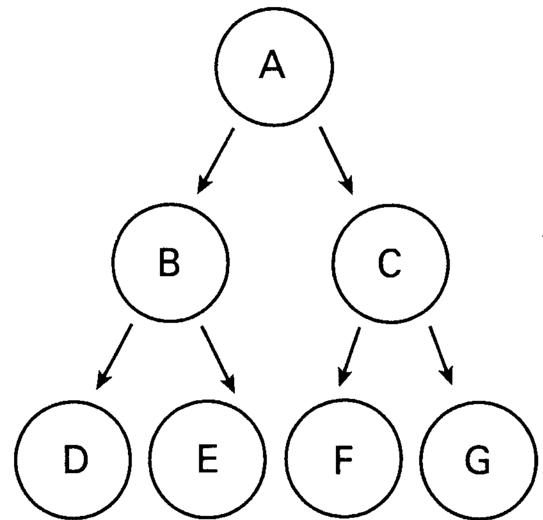


FIGURE Ib : *Star*

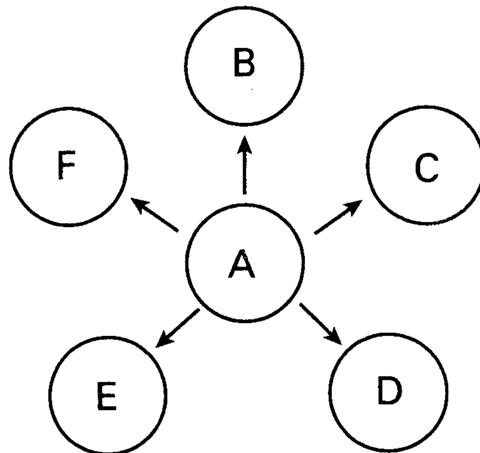
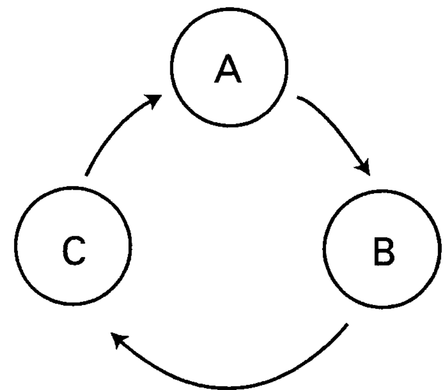


FIGURE Id : *Circle*



member holds of the other members are roughly equal, the network can be said to have an 'egalitarian' structure, that is, no single member is in the position to dominate the others. Collective decisions are reached in a reciprocal clique only by consensus. A non-co-operative member, however, can be put under pressure by the other members, for each company is enfranchised to participate in the decisions of every other company in the network, and this say in its affairs can be exploited so as to influence its decisions. Because of this, Williamson (1985: 169) refers to this structure of relationships as one of 'mutual hostage'.

The Japanese *keiretsu* provides an example of a reciprocal clique. Yamauchi (1994: 156) reports that the central member companies of the six *keiretsu* groups hold reciprocally about 2 per cent of shares; all members together then hold some 32 per cent of the stock of each

individual member – enough to repel external affronts (e.g., hostile takeovers) but not enough for any one alone to dominate another. In his study on 'alliance capitalism' Gerlach (1992: 77) reports reciprocal relationships among the 60 largest Japanese firms of which 18 per cent are connected by mutual capital participation. In Germany, on the other hand, only five reciprocal relationships can be identified among the 623 largest firms.[4] The 'clique' is not a dominant network configuration in Germany.

The *star* network is represented in Figure Ib, with one dominant firm surrounded by a number of 'satellite' companies in which it has a relatively high capital participation. In contrast to the reciprocal cliques, star networks have a hierarchical structure (Baker and Faulkner 1993: 849). In terms of both capital ownership and interlocking directorates, the parent company dominates the subsidiaries which do not interlock with one another, and hence the central enterprise of the network controls all formal communications and decision making. German combines frequently have such a star structure and, therefore, differ from the Japanese *keiretsu* by their hierarchical form and the lack of reciprocal relationships.

If the arrows in Figure Ib were turned around, the structure would be that of an *inverted star*. The ideal-typical structure of capital networks in Britain (and in the USA) is the inverted star with relatively limited participations of several companies in a single large corporation. Firms in the financial sector (pension funds, insurance, investment funds) own 3–5 per cent of the shares or a large enterprise, as for example, in British Aerospace, British Petroleum (BP) and Amec in Britain; or IBM, General Motors, and Ford in the USA (Brancato 1991).[5] The structure of capital networks in Britain and the USA is *fragmented*[6] in a way which Scott (1990) terms as a 'constellation of interest'. Up to 20 financial institutions own a small part of a company's stock which, as such, is not large enough to yield dominant power. Whereas the star structure has only 'one chief and many Indians', as it were, with the inverted star just the opposite is the case.

The *pyramid* structure in Figure Ic is one in which a single dominant firm (A) owns a large share in other firms (B, C) which in turn dominate still further firms (D–F). Through its multi-tier organization the pyramid structure (which actually combines a series of star-patterned groups) enhances the hierarchical character of the corporate network. Firm A invests its own resources to control firms B and C, and can thereby utilize the resources of B and C to exert (indirect) control over firms D–G. The complete structure of a Japanese *keiretsu* consists of a reciprocal clique (of large enterprises) and numerous pyramids (primary and secondary supplier firms) and therefore combines hierarchical with egalitarian features (Gerlach 1992: 102). The pyramid structure is also common in Belgium (Daems 1978), and many German combines also belong to this form of network organization.

Figure Id shows a circular network; here firm A is able through a series

of intermediate steps (indirectly) to own part of itself. The *circle* is a functional equivalent of the reciprocal relationship, and has the effect of strengthening the hand of management *vis-à-vis* shareholders, who in effect stand 'outside' the circle. Through a series of 'vassal' firms a company can conceal its true ownership and indirectly control itself; this is sometimes employed as a protection against external influences (e.g., hostile takeovers).[7] German banks, insurance companies, and large enterprises in the 'core' component of the capital network are linked to each other by circular capital holdings (Adams 1994: 150); 'circles' are also often exploited in France to ensure family control of large enterprises.

These four configurations do not exhaust all the possible structures that corporate networks can take,[8] but they illustrate some of the basic patterns that may be combined into more complex forms. While it is often remarked that new organizational forms have developed 'between' markets and hierarchies (Powell 1990), the question as to what *structures* these new organizational forms show is seldom asked, or whether countries differ as regards the typical structures that these take.[9] So far the structure of different corporate networks has been presented. In the next section we ask which network structures may facilitate co-operation between competing firms.

3 COMPETITION AND CO-OPERATION IN THE CORPORATE NETWORK

A corporate network bound together by ownership and/or interlocking directorates can be regarded as a collective actor whose freedom to manoeuvre is constrained by features of its own organizational structure. Among the possible forms that network structures can take, some are more favourable in promoting co-operation among members and the coordination of common strategies. Examination of the configuration of a network thus indicates the chances of co-operation among its members.

In the clique network each member is dependent upon each other member, and no single member enjoys hegemonical power over the others. Co-operation is made possible by reciprocal dependence, but collective actions require a universal consensus. Cohesion in the Japanese *keiretsu* is further strengthened by the network of interlocking directorates. The reciprocal dependence combines with the group's ethos, and structural and normative elements become mutually supportive in the *keiretsu* clique. 'In the case of what [is] called diffuse reciprocity, co-operation is contingent not on the behaviour of particular individuals but on the continued successful functioning of the group' (Keohane 1986: 6).

Co-operation in the star network is guaranteed by hierarchical co-ordination. Here the dominant company buys a sufficient proportion of

shares in the firm that it wishes to control in order to ensure that the latter is in a relationship of dependence.[10] German law ascribes to the dominant enterprise the responsibility of combine leadership (Hommelhoff 1982) which is reflected in the structure of interlocking directorates: members of the management board of the dominant firm also sit on the supervisory board of the dependent firm. The combine resembles the *keiretsu* in the high overlap of the capital network with the network of interlocking directorates, but it is different in its structure: Whereas the *keiretsu* is integrated by the group's ethos and by consensus, the combine is governed by hierarchical co-ordination.

The inverse star network can be described in terms of the 'prisoner's dilemma': among the owning enterprises (the periphery of the star) there obtains a balance of power, as the relative capital participation of each is fairly equal to that of the others. Each of these actors, however, has its own specific set of interests, and there no formal organizational structure exists to co-ordinate their behaviour. Co-operation must be *negotiated* on an *ad hoc* basis.[11] The ability to take collective action is relatively undeveloped in the inverse star network, as no institutional framework exists to co-ordinate the autonomous shareholders. In a group of 'rational' egoists no one would be prepared to bear the organizational costs of co-ordination. Co-ordination generally results not from co-operation but from competition. Financial institutions which *jointly* own a substantial part of stock in large corporations may follow the option 'exit' or 'voice', but 'voice' requires the coordination of strategies among minority shareholders which is difficult to obtain in a competitive environment.

The network structures which are shown in Figure I are ideal types and the inferences we have drawn with respect to the chances of co-operative behaviour are *hypotheses* which cannot be tested with our data base. We have collected data which allow a structural analysis of capital networks and interlocking directorates in two countries but we cannot test the behavioural consequences of these structures. We shall show in subsequent sections that the 'inverse star' is a dominant network configuration in Britain, but we cannot verify the absence of co-operation among British financial institutions.

4 CONCENTRATION OF OWNERSHIP

Corporate networks can be based upon several types of exchange relationships: capital ownership, interlocking directorates, credit or supplier relationships, joint ventures. The following analysis considers only capital ownership and interlocking directorates, as no information is available on the other forms of networks. Data on corporate networks for 1992/93 have been collected for the 623 largest firms in Germany and the 520 largest firms in Britain.[12]

TABLE I: *Distribution of stock ownership in Germany and Britain: Proportion owned in the 500 largest firms in each country (1992)*

Type of owner	Proportion of stock owned (%)												Total	
	–4.9		5–9.9		10–24.9		25–49.9		50–74.9		75+		(%)	
	G	GB	G	GB	G	GB	G	GB	G	GB	G	GB	G	GB
Individuals/ families*	19.2	7.1	17.2	8.1	12.3	25.3	18.4	37.0	22.6	16.0	21.1	2.2	18.9	10.1
Non-financial firms:														
Domestic	19.2	6.3	25.0	4.5	30.1	12.4	21.1	10.9	49.2	8.0	46.3	20.9	36.1	7.3
Foreign	6.4	1.8	6.3	2.9	2.7	7.2	5.3	26.1	9.4	12.0	21.4	72.5	11.7	7.0
Financial firms:														
Banks	20.5	13.4	20.3	8.8	23.3	5.2	18.4	6.5	2.8	4.0	0.6	2.2	10.8	10.2
Insurance	16.7	23.8	26.5	21.3	12.3	4.1	19.3	6.5	3.8	–	4.2	2.2	10.6	18.8
Funds**	2.5	47.3	3.1	53.7	8.2	45.8	3.5	13.0	0.9	–	0.6	–	2.8	44.6
Public bodies	15.4	0.3	1.6	0.7	11.0	–	14.0	–	11.3	60.0	5.8	–	9.1	2.0
Total														
N=	78	901	64	577	146	194	114	46	106	50	313	91	821	1859
%=	9.5	48.6	7.8	31.0	17.8	10.5	13.9	2.6	12.9	2.4	38.1	4.9	100	100

Notes:
Unit of analysis: shareholdings (= proportion of stock).
Germany (G): N = 821; Britain (GB): N = 1859.

Each column adds to 100%, which means that each column category (= size of shareholding) can be compared between the two countries. For example: 78 holdings in Germany (= 9.5%) but 901 in Britain (= 48.6%) make up less than 5% of company stock. In the case of Germany these 78 holdings are distributed as follows: 19.2% to individuals/families, 19.2% to domestic non-financial firms, 6.4% to foreign non-financial firms, 20.5% to banks, 16.7% to insurance companies, 2.5% to investment funds, and 15.4% to the government and other public bodies (e.g., labour unions). The bottom row adds separately for Germany and Britain to 100% and presents the percentage of holdings in each country falling within the respective share-size category. The two last columns give the proportion of shares in each country owned by the respective type of owner.

* Includes (family-) foundations. It was not possible in each case to determine whether family ownership was concealed behind the foundation.

** German sources designate only few investment funds (Vermögensverwaltungs-Gesellschaften) as owners; in Britain investment funds hold 44.6% of all shares (see last column). At the time of data collection (1992), only shareholdings equal to or larger than 25% have to be published in Germany; in Britain shareholdings equal to or larger than 3% had to be published. The different legal requirements to notify shareholdings in the two countries do not affect our main conclusions, since the *large* shareholdings have to be notified in both countries.

Table I describes the ownership structure of German and British enterprises in terms of two features: proportion of stock owned and the type of owner.[13] For the 500 largest German firms 821 shareholders were identified, and for the 500 largest British firms, 1859. The concentration of ownership (last row) in Britain is relatively low: 48.6 per cent of shareholders own less than 5 per cent of company stock, and only 4.9 per cent own more than 75 per cent, while no more than 7.3 per cent control a majority interest.[14] In Germany the concentration is higher: only 9.5 per

cent of holdings are smaller than 5 per cent, and 38.1 per cent are larger than 75 per cent, with 51 per cent commanding a majority interest in the firm. This greater concentration of holdings means that in many large German companies only one shareholder exercises effective control over the company.

The second structural difference concerns the type of owner. In Britain investment funds hold 44.6 per cent of shares, and a total of 73.6 per cent are owned by the financial sector (last column), whereas in Germany 36.1 per cent of shares belong to domestic firms not in the financial sector while those that are in the financial sector hold only 24.2 per cent. This means that a *majority* interest in a high proportion of German firms belongs to other, non-financial firms. These data indicate an initial difference in the structure of corporate networks: the combine structure is the dominant pattern in Germany whereas the 'inverse star' configuration characterizes the ownership structure in Britain, with a relatively high number of institutional investors owning only limited shares in large companies.

The percentage of stock in Germany possessed by individuals, families, and (family) foundations is noteworthy: 18.9 per cent of all holdings (versus 10.1 per cent in Britain). Even among large holdings the proportion belonging to private persons is high: 21.1 per cent of holdings accounting for at least 75 per cent of the company stock (versus 2.2 per cent in Britain) and 22.6 per cent of those between 50 per cent and 74.9 per cent (versus 16.0 per cent in Britain).

Studies of the ownership distribution structure of the largest firms in the USA and Japan[15] show that the five largest owners hold an average of 24.4 per cent of stock in the former and 33.1 per cent in the latter. Assuming an equal distribution of these holdings among the five largest owners[16] would give an average of approximately 5 per cent in Japan and 6.5 per cent in the USA, thus resembling the actual case in Britain. From other sources, however, we know the corporate network patterns in Japan and the USA differ, in that the former has the typical 'clique' form and the latter the 'inverse star' configuration. This demonstrates that various distribution structures can be combined with differing network configurations. An analysis that only considers the concentration of ownership without looking at the network *configuration* may miss the point: the power relationship within a network of companies.

Since the early 1970s the structure of ownership and control in large corporations has been changing in many countries to give rise to a new type of capitalism which has often been termed 'institutional capitalism' (Rappaport 1990; Clark 1980).

> The owners of the largest modern enterprises are other enterprises, which are, in turn, owned by yet other enterprises. . . . In this system enterprises are linked to one another through chains . . . of never-ending circles of connection – 'vicious' or 'virtuous' circles according to taste'. (Scott 1986: 1)

Banks, insurance companies and pension funds have replaced individual shareholders and have shifted the balance of power between managers and owners in favour of the latter.

Individuals and families have become less important as shareholders whereas non-financial enterprises and financial institutions gained a dominant position as owners of large corporations. In 1950 individuals/families owned 42 per cent of all shares in (West) Germany, non-financial firms 22 per cent and financial institutions 2.7 per cent; by 1979 these percentages had changed as follows: individuals/families 19.2 per cent, non-financial firms 40.4 per cent, and financial institutions 13.2 per cent.[17] A similar development is observed in Japan. In 1949 about 70 per cent of all shares were owned by individuals/families; 5 per cent by non-financial enterprises; and 15 per cent by financial institutions. In 1985, the proportion of individual shareholdings had dropped to 25.5 per cent, whereas non-financial firms held 25.6 per cent and financial institutions 45 per cent of all shares (Gerlach 1992: 60). In the USA the institutional shareholders have become more and more important during the last two decades: in 1950, they held 8 per cent of all shares; in 1980 33 per cent, and in 1988 45 per cent (Coffee 1991: 1291).

Our cross-national comparison has shown that there is more than one type of 'institutional capitalism' and that these types vary with the legal and cultural environment within which large public corporations operate. We have identified three dimensions which characterize different variants of 'institutional capitalism': the network configuration which furthers co-operative or competitive relationships among firms; the concentration of ownership which may be high (Germany) or low (Britain); and the type of shareholder which may be a financial institution (Britain, USA) or a non-financial firm (Germany). Cross-classifying these dimensions we obtain different types of 'institutional capitalism' which provide a more accurate picture of the evolution of ownership and control in the advanced countries.

The managers of the central company in large German combines are managers *and* owners: They are managers of the parent company *and* represent the owner towards the dependent companies (see Figure Ib). In institutional capitalism owners have recaptured power from managers, but the puzzling fact is that the owners are managers.[18] Managerial power and the power of ownership are not divorced in institutional capitalism but they join and reinforce each other.

5 THE STRUCTURE OF CAPITAL NETWORKS

The data presented in Table II demonstrate that the 'star' pattern is a dominant form of corporate networks in Germany while the 'inverse star' is more frequent in Britain. Figure I gives an intuitive idea of national

TABLE II: *The structure of capital networks in Germany and Britain (1992)*

Position of firm in network	G (%)	GB (%)
Parent/outdegree		
One participation	6.7	1.5
More than one participation	5.0	2.5
Subsidiary/indegree		
One owner	32.9	24.8
More than one owner	7.9	38.2
Intermediary	13.6	8.6
Isolated	33.9	24.4
Total	100	100

Notes:
Unit of analysis: firms
Germany: N = 623 firms; Britain: N = 520 firms

differences in network configurations, whereas Table II provides the empirical evidence for these differences.

Each of the companies examined was assigned to one of the categories in Table II. 'Parent' here refers to a company owning part of one or more other companies, without itself being owned by another large company in our data matrix (only outdegree),[19] and 'subsidiary' to one belonging to one or more other companies, without itself owning another company. An 'intermediary' is one which both belongs to other companies, and which owns still others in our data matrix; these are situated within a pyramid network (see Figure Ic) dominant *vis-à-vis* those at the lower hierarchical levels but subject *vis-à-vis* those at the higher levels. 'Isolated' companies are those which have no (capital) relationship with any of the other companies examined here.[20]

The data on Germany in Table II are drawn from 623 firms. The set of their reciprocal relationships gives a network matrix of 623 × 623 = 387,506 cells, of which 628 are non-empty, which gives a density of 0.162 per cent. The larger a network matrix, the smaller is the density coefficient because any single firm can realize only a fraction of all possible network opportunities. Similar considerations apply in the case of the British matrix (density 0.299 per cent).

The rows of the matrix show in which other firms a particular company participates (outdegree), and the columns show to which other firms it belongs (indegree). Every firm has a network *structure*, i.e., it has a particular configuration as shown by its indegree and outdegree; it was on the basis of this structure that it is categorized in Table II.

A total of 11.7 per cent firms are parent companies (outdegree) in Germany and thus constitute centres of hierarchical control. These include not only banks and insurance companies but also many enterprises in the manufacturing and service sectors as, for instance, Daimler

Benz (Mercedes), Volkswagen and Siemens. This compares to only 4.0 per cent in Britain, where the respective firms are almost exclusively those of the financial sector and participate only rather minimally in the other large enterprises.

An important structural difference between the two countries is found regarding the indegree: in Britain 38.2 per cent of all firms show multiple ownership, with most shares being smaller than 5 per cent (as seen in Table I), but in Germany only 7.9 per cent do so. Most subsidiary firms in Germany have only one parent (32.9 per cent), which generally enjoys a controlling interest; in Britain, on the other hand, most subsidiary firms have multiple parents, no one of which commands a position of dominance. The data in Table II thus confirm to some extent the combine nature of German corporate networks (star pattern) and the 'inverse star' configuration in Britain.

6 A TYPOLOGY OF COMBINES

A comparison of the matrix of capital networks in Germany with that in Britain shows a major difference in the networks of the two countries: in Germany many firms of the non-financial sector are interlocked with other firms of the non-financial sector, while this is rarely the case in Britain (and the USA, see Davis et al. 1994: 556). What is the reason for this difference?

Both countries have witnessed economic concentration, as certain large firms have absorbed others, but the structure of corporate networks in the respective countries nevertheless differs. A firm that is absorbed by another generally retains its independence as a legal entity in Germany while in Britain (and the USA) it typically ceases to exist outside of company-internal structures, thus losing not only its economic but its legal independence as well and becoming merely a division or 'profit centre' of the new parent (Baker 1992).

Does it make a difference whether a subsidiary that is 100 per cent the property of a parent retains its legal independence from the parent or is completely absorbed within it? Is this independence nothing more than a mere façade for the pretense of economic autonomy? To answer these questions one must first consider the distinctions in German corporate law among different types of combines.

In 1965 (West) Germany became the first Western industrial nation to pass a law on corporate combines which defines the rights and responsibilities of owners when these are not individuals but rather, themselves, other enterprises.[21] The law on corporate combines pertains to interlocking firms and regulates relationships 'between' markets and hierarchies, which is the subject of the present analysis. German Combine Law recognizes that increasing numbers of firms belong to others, i.e. that firms own firms and that it *makes* a difference of whether owners are

individuals or corporations (Windolf 1994). It follows a brief description of two types of combines as defined by German Combine Law to show that the configuration of networks in Germany – as in other countries – is shaped by the institutional and legal environment.

(1) In a *defacto combine* there is a relationship of economic dependence between parent and subsidiary, but the organs of the subsidiary (management board, supervisory board) are required to continue representing the specific interests of the subsidiary. The dependent firm is an independently functioning unit, and its management must guarantee the maintenance of this organization. The *de facto* combine involves economic dependence, but 'at arm's length'; subordination to combine direction, but autonomous running of the firm's own business; co-operation on 'common' interests, but protection of the firm's own specific interests. It is this mixed nature of relationship that makes the *de facto* combine an exemplary organizational form 'between' markets and hierarchies.

In the *de facto* combine the relationship between parent and subsidiary is no longer regulated through the market. The dominant of the two firms is able to influence the behaviour of the dependent firm in a way that would not be permitted in the market. Complete subordination is nevertheless avoided, and therewith the inefficiency associated with large bureaucracies. A *de facto* combine comprises a system of semi-autonomous companies stabilized by legal regulation and hierarchical coordination.

The dependent firm enjoys a degree of autonomy and is responsible for its own debts. The principle of limited liability applies in *de facto* combines, with the parent liable only to the extent of its participation in the stock of the subsidiary.

(2) In the *contractual combine* an 'enterprise contract' binds parent and subsidiary, stipulating that the former may mandate certain actions on the part of the latter even if these are disadvantageous to it (Windolf 1993). Here it is therefore possible to do that which is precisely forbidden in the *de facto* combine, i.e., act against the interests of the dependent firm. On the other hand, the parent firm in a contractual combine is liable for all the debts incurred by the subsidiary. The legislation on combines intended this as the standard form of combine: the enterprise contract sets out clearly both the ultimate power of parent *vis-à-vis* the subsidiary and its ultimate liability as regards debts. The practice, however, has proven otherwise: the most frequent form of corporate network in Germany is not the contractual but the *de facto* combine.[22]

An enterprise contract can be concluded between two firms when the parent controls at least 75 per cent of the stock in the subsidiary. Our sample included 313 cases of this level of participation; however, among these we counted only 54 cases (17 per cent) of enterprise contracts. Since we can presume combines involving less than 75 per cent capital

participation to be of the *de facto* type, it is safe to say that the majority are of this type.

The difference between a British (or an American) firm and the *de facto* combine in Germany lies in the (limited) autonomy enjoyed by the subsidiary in the latter type and the resulting privilege of limited liability. A 'profit centre' or a 'division' does not constitute a legally independent subsidiary. This explains why we have included legally independent subsidiary firms in our network matrix even when the firms in question belong entirely to another.[23] One must also consider that the legal independence of the subsidiary increases the opportunities for interlocking relationships in the overall system. If the subsidiary were to be completely absorbed, it would cease to have a supervisory board, which is the meeting place for interlocking directors.[24]

7 SECTORAL NETWORKS

A cartel is a group of firms in the same economic sector that form an association for the purpose of controlling prices and/or production. In the inter-war period virtually all economic sectors in Germany were subject to cartel agreements. If it is the case that this form of 'regulated competition' continues to influence the structure of corporate networks in Germany, one could expect to find more intrasectoral than intersectoral networks, that is, the interlocking structures would bind firms with one another that are in the *same* economic sector more frequently than they would firms in *different* economic sectors. The association of the combine structure (hierarchical co-ordination) with intrasectoral networks creates favourable circumstances for the co-ordination of competing firms.

We have computed two matrices which show the capital network (ownership) within and between economic sectors both in Germany and Britain. The figures in the matrix are standardized density coefficients that represent the frequency of relationships between firms of different (same) economic sectors. Because of lack of space the two matrices are not printed here but are available upon request from the authors.[25] The coefficients on the diagonal refer to the network density *within* the individual sectors. Virtually all of the highest coefficients in the matrix for Germany are on this diagonal, which means that German firms form interlocking networks principally with other firms in the *same* economic sector. This confirms the thesis of 'regulated competition' in the German market. The combine is thus a group of firms in the same or closely related economic sector(s) that comprises the functional equivalent to the pre-war cartel. The highest intrasectoral network density is found in the sectors of gas and petroleum (32.1), mining (23.8), and insurance (23.3).[26]

We have also computed the marginals[27] for the matrix of capital ownership in Germany and these marginals show that the strongest network activity (outdegree) are found in the sectors of banks and savings

associations (6.0) and gas and petroleum (5.5). In the sectors of mining (4.2) and nonferrous metals (3.8) there is a relatively high proportion of dependent firms (indegree).

One might argue here that the only reason why the intrasectoral density is so high in Germany is that the purely subsidiary firms (100 per cent dependence) are included in our dataset. To test this objection we eliminated all firms with 95–100 per cent dependence and calculated a new matrix.[28] The coefficient for intrasectoral density is highest in 18 of the 21 sectors in our original matrix; when the 95–100 per cent dependent firms are excluded, the intrasectoral coefficients are still highest in 12 of the 21 sectors. Although the existence of pure subsidiary firms does increase the intrasectoral density, even without these considerable interlocking is evident among the firms within most sectors.

The capital network matrix for Britain differs from that for Germany in two respects. First, in only 7 of 30 sectors is density highest within the sector (highest coefficient on the diagonal). In contrast to the German matrix, no pattern is evident here regarding the highest coefficients, and the distribution seems to be random. Second, the capital network matrix for Britain shows a clear participation by financial institutions in firms of the other sectors. The highest coefficients for network activity across all sectors (outdegree) are those for banks (23.9) and insurance (28.5).

The *instra*sectoral network activity is clearly lower in Britain than in Germany. British firms are often in association with firms in other sectors (conglomerates), and those in the financial sector with others in non-financial sectors. Networks among competing firms are rare and the structure in the British matrix is more compatible with a model of market regulation.

8 INTERLOCKING DIRECTORATES

The existence of an interlocking directorate can provide an enterprise the opportunity to exert power and influence over another.[29] A member of the management board of one firm who is elected to the supervisory board of another is enfranchised to take part in company decisions, can demand delicate information from the management, and can attempt to influence his colleagues on the board. Why does a company extend to another this power over it? Below, four potential answers are put forward to this question, which provide hypotheses on the importance of interlocking directorates (Koenig et al. 1979).

(1) The thesis of *resource dependence* begins by observing that firms are not self-sufficient but depend upon resources from their environment. These resources include goods, services, and information which are essential for the survival of the firm, and the acquisition of which is problematic. Firms develop strategies to reduce their environmental dependence, one of

which are interlocking directorates. The theory of resource dependence sees the structure of the interlocking directorates as reflecting the environmental dependence of the enterprise (Pfeffer 1992); thus, one would expect to find an interlocking of the enterprise with those organizations upon whose goods and services it is especially dependent.[30]

(2) Almost all firms are dependent upon capital in the form of credit or securities. As a result, firms in the non-financial sector generally depend in some way upon institutions in the financial sector (banks, insurance companies). This dependence gives rise to the thesis of *bank hegemony*. The financial sector can exert influence upon the non-financial sector because the latter is dependent upon this difficult-to-acquire resource which the former controls. A number of studies have shown the interlocking directorates between financial and non-financial sectors to be particularly dense and that this network reflects the dependence upon capital. The centrality of banks and insurance companies in those networks is often taken as an indicator of the importance of financial institutions (Mintz and Schwartz 1985; Ziegler et al. 1985).[31]

(3) German corporate law prescribes that the shareholders' meeting elect the supervisory board, and that this board appoint the management board (executive managers) and supervise its practices. This set of relationships is intended to guarantee the influence of shareholders over the running of the company. However, in addition to these formal procedures there exist informal recruitment channels which have the effect of counteracting the legal stipulations. A list of candidates for the supervisory board are proposed by the management board to the shareholders, who then ratify the list. The managers recruit as their own 'supervisors' persons whom they know and trust, thus giving rise to an 'old boys network'. This is the case not only for supervisory boards in Germany but also for 'external' directors in the USA (Brudney 1981) and Britain. The third thesis is that interlocking directorates stabilize *managerial domination*. The supervisory board is not actually elected but merely co-opted, and this in fact means that the influence of the owners is effectively negated. The supervisory board is supposed to be a puppet in the hands of executive managers.

(4) Networks strengthen the *social cohesion* of a group (Friedkin 1984). The more dense a set of social contacts, the more integrated and capable of undertaking concerted action it is (see Figure Ia, clique). In managerial capitalism, in which the control of the enterprise is entrusted to its managers, interlocking directorates are an important instrument for strengthening the social cohesion of the economic elite. Useem (1984) maintains that the 'big linkers', i.e. managers with three or more positions in the network, are particularly prominent in sponsoring the interests of large enterprises. In his view, the structure of interlocking directorates is