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Origins of the American Corporate Network

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Numerous studies have shown that since about 1900 the largest industrial, financial, and transportation companies have interlocked extensively through a sharing of directors and, much less often, officers (e.g., Bunting and Barbour, 1971; Bunting, 1976a, 1976b; Dooley, 1969). In fact, this interlocking has been so extensive that a virtual network exists whereby nearly any large corporation in principle is able to participate either directly or indirectly, once or twice removed, in the top-level policy deliberations of any other large concern (Mizruchi, 1982; Pennings, 1980).

Little is known about the origins of this network. Most research implicitly assumes that the network has resulted from some relatively recent decline in competition and subsequent movement toward economic concentration. This conclusion follows from the commonly accepted proposition that competition precedes monopoly in industrial development. Scherer (1979: 47), an authority on modern American industrial organization, cites Marx for the essence of this notion: “‘One capitalist always kills many’ (creating) a ‘constantly diminishing number of the magnates of capital, who usurp and monopolize all the advantages of this process.’ ” In less colorful but more factual terms, Burns (1936:1-42) and many others have described the “decline of competition” and the factors leading to the domination of many industries by relatively few large corporations (literature reviewed in Scherer, 1979:67-70; Blumberg, 1975:16-83).

Nearly all writers have tended to view interlocking itself as a relatively recent activity caused by the growth of modern corporations, professionalization of corporate managements, and

decline of owner influence in corporate affairs. Meyer (1904:109-111) attributed what he called the "transverse business of affiliation" to the development of great trusts with omnibus powers "to do any and all things which it is possible to do legally." Berle and Means (1932:127-152, 220-232) discussed interlocking in the context of the "evolution of the modern corporate structure" and the "legal position of management," while Carosso (1970:32-50) considered the activity to be the "institutionalization of close personal ties."

In these and nearly every other view of the topic, explanations of interlocking are intertwined with discussions of modern large corporations and the decline of competition. Implicit in these is the assumption that networks and interlocks did not, could not, or would not exist in a regime of competition because no company or group of companies was large enough to influence the free market. However, if interlocking did exist in a period commonly thought to be competitive, then the theoretical dichotomy between competition and monopoly requires reevaluation, as do explanations of industrialization based on it.

In the following pages, a group of large companies will be examined for the years 1816, 1836, 1871, 1891, and 1912 to determine the extent and nature of their interlocking. While the inclusion of any particular year can always be questioned, it seems highly probable that in the range of years selected at least one predates modern corporations and the alleged decline of competition. This should provide a basis for determining the approximate origins of the American corporate network, as well as, by implication, providing some insight into the competitive nature of the economy at different points in time.

DATA

The search for basic corporate data that could be used to determine interlocking directories soon revealed a few interesting eighteenth-century occurrences. For example, Davis (1917:246, 325) found that the charters of the Union Bank of Boston (1792),

Bank of Pennsylvania (1793), and Bank of Baltimore (1795) all contained provisions forbidding directors from joining the board of any other bank. Similar restrictions within the industry existed for all Massachusetts joint stock insurance companies, as well as for New York Mutual Fire (1798). Adequate data sources, however, could not be located for any year before 1816. Fortunately (and perhaps not coincidentally, since Callender [1902:136] found changes in business enterprise before and after 1815 so extensive as to “evidently mark the beginning of what we may call the capitalistic era in American industry”), this seems an appropriate date to begin the examination of the American corporate network in this period.

To capture any trends in network activity during the nineteenth century, certain other years are also included. The controversy over rechartering the Second Bank of the United States, the rise of free banking, and the general political-financial situation at the time dictate that a year close to 1836 should be included. Postbellum industrialization and transportation developments, as well as the consequences of the National Banking Act of 1863, argue for the inclusion of 1871. Continued economic growth, the growing importance of financial intermediaries, and the creation of the first trusts justify adding 1891. Finally, for comparative purposes, the examination terminates with 1912 because that year marks the zenith of interlocking in the United States (Bunting, 1976a). While other years, especially around those selected, could have been used, accessible source materials and occasional serendipity led to the choices made.

Since large corporations compose the network under discussion, there is a potential problem in the comparability of years. If 1816 is near the beginning of capitalism and, as sources indicate, 1912 is near the height of financial capitalism, then the network composition is likely to be altered significantly over time. To avoid composition changes, companies included for consideration were limited to the largest banks, insurance companies, and railroads. This restriction does not seem particularly confining, because banking was a fundamental industry during the entire period; insurance, first as marine and fire, later as life, was always

an important source of investment funds; and railroads, although starting late, dominated transportation after 1865. While there are obvious additions, such as private banking houses or utilities, these were excluded because of inadequate data or insignificance in certain years.

This restriction to leading banks, insurance companies, and railroads also is consistent with historical concerns about the power of finance capitalists, control of money and credit, and economic concentration. The extent and potentialities of interlocking were first exposed publicly in investigations of the life insurance industry in 1905 by the Armstrong Committee (Noyes, 1909:336-338). In 1912, a more general investigation of the "Money Trust" by the Pujo Committee focused primarily on the activities and alleged power of major bank, railroad, and insurance directors (Dixon, 1914).

The companies selected for 1871, 1891, and 1912 were the largest 20 banks, 10 insurances, and 25 railroads in the nation. For 1816 and 1836, because of limited data, geographical coverage was limited to companies headquartered in New York City. In the former year, the largest 10 banks and 10 marine and fire insurances were included; in the latter, the largest 20 banks, 10 marine and fire insurances, and 10 railroads. While the shift in coverage from New York to the nation might seem troublesome, it is of minor consequence because, in fact, the largest New York companies were also among the nation's largest. To determine interlocks, the names of all directors or trustees and, in the case of railroads, the leading eight officers were compiled from such basic primary sources as *Banker's Magazine*, *Poor's Manual of Railroads*, *Longworth's Pocket Almanack* for 1817, and *New York As It Is In 1837*.

FINDINGS

The view that competition ruled supreme in a nation populated by small, independent operatives in the years before big business is not correct, at least for banking, insurance, and railroad com-

panies. In fact, the largest firms in each of these industries usually could be identified quickly. If homogeneous competitors had existed, this identification would have been difficult, if not impossible.

The relative importance of these companies also can be indicated broadly. Although aggregate statistics usually could not be located for the pre-Civil War period, data did permit calculation of concentration figures for New York banks in 1831 and 1842 (State of New York in Assembly, 1832, 1843). In the former year, the 10 largest represented 94% of New York City banking capital and 57% of the state capital; in the latter year, the figures were 70% and 40%, respectively. While it is probably safe to assume that the Agricultural Bank of Herkimer and the Manhattan Company had little business in common, these ratios nonetheless demonstrate that New York City banking was dominated by a few large concerns. For the period after the Civil War, some rough calculations indicate that the 20 largest banks controlled about 35% of banking capital found in major financial cities, the 10 largest insurances about 75% of admitted life insurance assets, and the 25 largest railroads about 45% of total railroad capital (Bunting, 1979). Again, these figures support the contention that the evolutionary, "decline of competition" view of American industrial development requires serious qualification, if not revision.

While the dominating banks, insurances, and railroads could be identified as far back as 1816, it remains to be determined if their directors ever formally dealt with one another through interlocking directorates. For each year, these directors (actually directors, trustees, and top railroad managers) were examined to determine the extent and nature of their interlocking. At one extreme, no interlocking could exist if each held only one position; at the other, "perfect" interlocking would exist if all positions were held by only one person. In fact, as Table 1 shows, most directors held but one position, with percentages ranging from 76 to 91 of all positions outstanding. On the other hand, a considerable minority of directors interlocked in any year, ranging from 24% in 1816 to 18% in 1836, 9% in 1871, 13% in 1891, and 17% in

Table 1 Frequency of Directors and Positions Held (percentages)

Number of Positions	1816	1836	1871	1891	1912
1	76	82	91	87	83
2	18	14	8	9	10
3	6	3	1	3	3
4	*	1	*	1	2
5	-	*	*	*	1
6+	-	-	-	-	1
Total (N)	(288)	(545)	(847)	(777)	(942)

*Less than 0.5%.

1912. The difference between 1816 and the other years most likely can be explained by the fact that there were only 20 companies in the sample for 1816. Since interlocking intensity is related to company size (Dooley, 1969:316) and more smaller companies were included in the last four years, intensity declined.

Clearly, substantial interlocking existed during the entire period between 1816 and 1912. This means that theories of the activity based on certain stages of industrial development must specify the qualitative differences in interlocks so that they can be assigned to specific stages. This is almost an impossible requirement, because virtually no evidence exists regarding individual motivations to interlock. Yet the continuous existence of linkages in particular industries for almost 100 years seems to argue for some general explanation of the activity.

When individuals hold multiple positions, they also serve to link separate companies together. This is shown in Table 2, which contains the distribution of companies by their number of interlocks. As a rule, the vast majority were affiliated with other companies: 100% in 1816 to 95%, 87%, 94%, and 91% in other years. Although Table 1 shows that a minority of directors inter-

Table 2 Frequency of Companies and Interlocks (percentages)

Number of Interlocks	1816	1836	1871	1891	1912
0	-	5	13	6	9
1 - 5	20	40	55	49	6
6 - 10	30	25	27	20	13
11 - 15	35	18	6	7	13
16 - 20	10	5	-	11	15
21 - 25	-	3	-	4	9
26+	5	5	-	4	36
Total (N)	(20)	(40)	(55)	(55)	(55)

locked, this table demonstrates that nearly all companies undertook the activity. This finding further supports the view that interlocking did not depend on particular factors like industry type, company size, or director motivation. Instead, its universality suggests the existence of a corporate network, directly or indirectly involving all the companies.

An analysis of interlocking by type of industry also leads to this conclusion. Table 3 compares horizontal interlocks between competitors and vertical interlocks involving suppliers of companies in different industries. As shown, vertical ties in 1816 and 1836 represented 68% and 72% of all interlocks. For the years thereafter this percentage fell somewhat, ranging from 55% to 59%. The substantial representation of both interlocking types suggests that it is not correct to attribute any specific motivation to interlocking at any particular time. If it is argued that linkages were established first among competitors to suppress competition, then the extensive number of vertical ties must be explained. If it is argued that linkages were established first to ensure access to investment funds, then the horizontal ties must be explained.

Additionally, Table 3 shows the absolute progress of interlocking over time. In 1816 there were 108 ties of either type. This total

Table 3 Interlocking Frequency by Type

Type	1816	1836	1871	1891	1912
Horizontal	35	46	47	83	268
Vertical	73	121	69	121	327
Total (N)	108	167	116	204	595
Percent Horizontal	32	28	41	41	45
Percent Vertical	68	72	59	59	55

rose to 167 in 1836, fell to 116 in 1871, rose to 204 and then more than doubled to 595 by 1912. The reasons for this rise and fall and rise again involve a number of factors. First, data regarding New York City trust companies could not be located for 1871. The interlocks and influence of banks are understated for that year because some of these were important banking concerns. Second, the dislocations and financial requirements of the Civil War probably changed business behavior. Finally, while always a source of investment funds, the insurance industry underwent a dramatic change between 1836 and 1871 with fire and marine companies declining relative to life insurance. For some reason, perhaps from standardized rates and intercompany agent mobility, life insurance companies never developed extensive affiliations with each other. The extraordinary jump in 1912 also requires special notice because obviously some fundamental changes occurred in corporate relationships after 1891. The precise nature of these changes is beyond the scope of this article but might include the rise of the trusts, changes in managerial techniques, or domination by finance capitalists.

More specific details on interlock types are found in Table 4, which shows frequency by particular industries. Despite some discrepancies, the table demonstrates that all the industries at all times were strongly linked with each other, although with varying

Table 4 Interlocking Frequency by Industry (percentages)

Industry	1816	1836	1871	1891	1912
Horizontal:					
Bk - Bk	40	46	2	36	46
Ins - Ins	60	37	4	1	1
RR - RR	-	17	94	63	53
Vertical:					
Bk - Ins	100	56	28	21	17
Bk - RR	-	23	43	58	73
Ins - RR	-	21	29	20	11

levels of intensity. The exceptions to this pattern can be explained by either poor data, as with banks in 1871, or changes in industry practices, as with insurances in 1871 and thereafter.

While the first four tables show the general pervasiveness of linkages among the largest companies in three important industries from earliest times, the existence of a corporate network has been considered only tangentially. More direct evidence on this network is found in Table 5. In 1816, all the companies were directly or indirectly linked together in a single network. Hence, since they were all interlocked, the coverage ratio was 100%. In 1836, all 38 interlocked companies were again in the same network for a ratio of 100%. In subsequent years, the figures were 46 of 48 for 96%, 50 of 52 for 96%, and 50 of 50 for 100%. Thus, there can be no question that a corporate network involving nearly all the largest companies in two leading industries existed at least by 1816 and in three leading industries by at least 1836.

The average density of a network refers to the number of interlocks, on average, necessary for any member company to interlock with any other. If the number of companies in the network and average density are equal, then all the companies are

Table 5 Selected Network Attributes

Attribute	1816	1836	1871	1891	1912
Coverage Ratio	100%	100%	96%	96%	100%
Average Density	35	92	137	137	89
Maximum Diameter	3	6	6	7	4
Average Diameter	1.75	2.42	2.98	2.74	1.78
Number of Companies	20	38	48	50	50

directly interlocked; if the two figures differ sharply, then a company has to interlock through many others to interlock with a particular one. Because of different sample sizes, the average density figures for the first two years cannot be compared with the last three. However, both the maximum diameter (the maximum number of interlocks required to link any two companies) and the average diameter (average density divided by network size) do provide some indication of network density over time. A comparison of the maximum and average diameters for the selected years shows that the network was always dense but tended to be less so in 1871 and 1891, as consistent with previous discussion.

One of the recurring themes in American economic history has been that “of the formation, under the auspices of the investment bankers, of a giant syndicate, a combination of the combinations, which would rule the country with a tyrannical grip” (Hofstadter, 1965:215). This idea is often dismissed as a paranoid delusion (for example, by Hofstadter), but it still might be of interest to determine whether this conspiracy of the money kings could have existed in theory through a network formed by a few individuals with a large number of directorships. Put another way, was there a small number of directors who linked together a great many of the largest corporations? In 1816, 18 directors with three or more interlocks, holding 55 positions, linked 95% of all companies; in 1836, 23 directors with 76 positions linked 73% of the companies; in 1871, 13 men with 43 positions linked 49% of the sample; in 1891, 30 men with 103 positions linked 60%; and in 1912, 37

directors with four or more interlocks, holding a total of 185 positions, linked 82% of all companies. Thus, at all times, a relatively small number of directors tied a large fraction of the largest companies into a relatively compact network. While this does not demonstrate a conspiracy to control commerce or the existence of a coordinated group, it does show that a small number of individuals had a unique vantage point in the overall corporate structure.

IMPLICATIONS

According to neoclassical economic theory, the normal state of industrial affairs is competition, a situation characterized by profit maximization, large numbers, and free entry. Profit maximization compels producers to seek the greatest difference between total revenues and costs, while free entry exposes this difference to the competition of any other producer earning any smaller difference anywhere in the economy. Ultimately, in equilibrium, competition maximizes social welfare with no excess profits and production at minimum costs. While this sketch omits details and qualifying assumptions, the view it portrays represents the predominant intellectual basis for the analysis of industrial activities.

The competitive model has great intuitive appeal because of its pluralistic nature and consistency with democratic notions. However, it is an involuntary form of economic organization because given the opportunity, producers will not compete. Instead, as profit maximizers, they will seek to avoid the conditions of large numbers and free entry by merger, legislation, advertising, conspiracy, price discrimination, predation, vertical integration, monopolization, and perhaps superior efficiency from larger size. Together, these efforts have led to what has been called the decline of competition and the domination of many industries by a relatively few large corporations.

Although the decline or elimination of competition creates opportunities for extraordinary profits, it also creates great uncertainty about how these profits will be gained (literature

reviewed in Scherer, 1979:169-227). Large competitors must monitor their rivals continuously to detect potentially adverse changes in strategies and tactics; also, they must observe their resource suppliers to ensure that rivals do not extract an advantage. Various methods have been attempted to monitor behavior. Perhaps the most obvious, direct agreements, solves nothing. Under the antitrust laws, such agreements are illegal among product competitors. Buyers and sellers can make direct agreements, but this would be of no use because they cannot bind nonsignatory third parties (literature reviewed in Scherer, 1979: 497-525; Thorelli, 1955:36-50).

In theory, statistical bureaus and trade associations might facilitate information exchanges. However, they cannot legally have an impact on competition, nor can they compel companies to provide information to them. Ultimately, large companies have only one effective method of monitoring: direct participation in the decision making of their rivals and suppliers. Accomplished by an exchange of directors or top officers, this participation reduces both the costs and uncertainty of monitoring, because the principals involved are the source of the information being sought. It also has the added advantage of providing a formal link to expedite communications among the companies involved.

Notwithstanding conventional theoretical views, it is hypothesized here that large companies interlocked quite early in the industrialization process in order to monitor their rivals and suppliers. By placing individuals in the decision-making process, interlocking directorates provided inexpensive, accurate information and tended to promote harmony among large companies. The extensive existence of this interlocking has led to the notion of the American corporate network, that large companies are essentially all linked together into one compact group. The data discussed here suggest that, at least for one segment of American industry, this network can be traced as far back in economic history as sources permit.

The existence of elaborate interlocking and a corporate network as far back as 1816 directly contradicts the usual view that

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