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*Alberto Rinaldi and Michelangelo Vasta*

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# The Italian Corporate Network, 1952-1983: New Evidence Using the Interlocking Directorates Technique

Alberto Rinaldi (University of Modena and Reggio Emilia and RECent)  
([alberto.rinaldi@unimore.it](mailto:alberto.rinaldi@unimore.it))

Michelangelo Vasta (University of Siena)  
([vasta@unisi.it](mailto:vasta@unisi.it))

## ABSTRACT:

The paper explores the structure of Italian corporate network by focusing on the relationships between financial – banks, insurances and holdings – and industrial companies in Italy during the period 1952-83 through the analysis of the interlocks that existed between them. By an interlock is meant the link created between two firms when an individual belongs to the board of directors of both. The analysis is based on a database – Imita.db – containing data on over 130,000 directors of Italian joint stock companies for the years 1952, 1960, 1972 and 1983. After showing a descriptive statistics of the companies and the directors included in the database, the paper develops a network connectivity analysis of the system. This is integrated by a prosopographic study about the *big linkers*, defined as those directors cumulating the highest number of offices in each benchmark year. The paper confirms that Italian corporate network maintained substantial peculiarities in the period investigated. In particular, it argues that interlocks played an important role in guaranteeing the stability of the positions of control of the major private companies and their connections with state-owned enterprises. In 1952 and 1960, the system, centred on the larger electrical companies, showed the highest degree of cohesion. That centre dissolved after nationalisation of the electricity industry in 1962 and was replaced by a less strong and cohesive one, hinged on banks, insurances and the major finance companies. At the beginning of the 1980s the centre appeared to have been further reshaped with the marginalisation of state-owned enterprises.

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The ownership structures and organisational formulas – with a large presence of holdings, a wide diffusion of family properties and State-owned enterprises, and a relatively low average firm size compared to that of other developed countries – characteristic of Italian capitalism are among the aspects most debated by historians. From Grifone's formulation on the centrality of finance capital<sup>1</sup> to Bonelli's arguments on capitalism and the State-controlled enterprise<sup>2</sup>, up to the neo-Chandlerian interpretations of the same phenomenon<sup>3</sup>, the subject has passed through the various seasons of Italian economic historiography<sup>4</sup>.

The control of a company is the exercise of an influence over its strategic directions and over the choices made to operationalise them. The subject of positions of control and of the mechanisms which regulate the change in them has assumed considerable importance in all industrial economies, and analysis of the relationships between those who have the wealth and those who manage it has attracted the attention of numerous scholars, who have discussed the efficiency of the various configurations<sup>5</sup>. Allocation of control over companies and the rules that govern this process have contributed significantly to determining the efficiency of the Italian economic system<sup>6</sup>. The aim of this study is to identify, using the interlocking directorates (henceforth ID) technique, some features of Italian corporate network between 1952 and 1983: in particular, control positions and the group structures that followed from these, with particular regard to the relations between state-owned and private enterprises. It also examines in detail those mechanisms that guaranteed the consolidation and defence of the control positions in the main business groups. Within this context, it becomes very important to determine the weight and influence of the relationships between business groups and the banking system, by verifying the effects that the 1936 banking law had on them. The paper is organised as follows. In section I we review the literature concerning the relevance of ID for the analysis of corporate governance, with a special reference to the case of Italy; in section II, we illustrate the source utilised for this study; in section III the characteristics of the system are illustrated through the use of several indicators typical of network analysis, in section IV we examine the connections generated by the central actors in the system, the *big linkers*. Section V deals with the role of the banking system, while section VI develops some considerations about the forces underlying the inter-company links we have observed. Finally, the paper ends with some conclusive remarks.

## I

Some theoretical approaches have recently been developed to analyse the features of ownership structures. The 'law and finance' approach suggests that legal protection of investors is the crucial determinant of capital market development, ownership concentration and organisational structures, and argues that legal protection is ultimately a by-product of a country's legal tradition<sup>7</sup>. According

to this view, if a country offers a high level of protection to shareholders, typical of common law regulation, its economy will be characterised by a higher incidence of widely held companies *à la* Berle and Means<sup>8</sup>. On the contrary, countries with a low level of shareholder protection, typical of civil law regulation, are generally characterized by a greater ownership concentration with a large diffusion of cross-shareholdings, differential voting rights and pyramidal groups<sup>9</sup>. Control is so valuable in the latter countries that companies will strive to make it not contestable<sup>10</sup>.

More recently, by observing that the structure of financial systems is not uniform over time, an alternative approach, known as ‘political economy’, has been proposed<sup>11</sup>. This view maintains that a country’s financial system and governance structure are not determined by unchanging institutional factors, but mainly by the behaviour and structure of interest groups that are changeable over of time. One prediction of this theory is that ownership is more concentrated in countries where the state plays a bigger role in the economy<sup>12</sup>.

The Italian case has recently been analysed with regard to these new perspectives<sup>13</sup>. The main results show that the ‘finance and law’ approach is not able to offer a satisfactory explanation of either the development of Italian stock market or the ownership structure of firms, while the ‘political economy’ view offers a convincing explanation of the first issue but not of the second one.

In this paper we deal with the control structures of Italian capitalism by using the ID technique which, fairly widespread during the first half of the XX century, has in recent times been re-utilised by sociologists, economists and economic historians for a variety of purposes, including analysis of inter-company links. By interlock is meant the link that is created between two units when a subject belongs to both; i.e. a director of two or more companies in the case of the study of the ownership structure. The analysis of ID comprises the reconstruction of the articulation of inter-individual and inter-company links by quantitative techniques of varying complexities.

A distinction can be drawn between those who maintain that the existence of ID is irrelevant and those who believe that it is important for corporate control analysis. Amongst the former, there are the theorists of managerial control of the company, who hold that the control function is exercised by management inside the company. The board of directors works only as an organ of representation and as an image for the market. In these models, based primarily on the historical experience of the American public company, directors do not play any operative role in the company. The existence of ID is thus interpreted as an instrument of representation, useful only to reinforce the prestige of some companies or individuals<sup>14</sup>.

Amongst the latter, two approaches can be identified. The first one, which dates back to the Marxist theory of the hegemony of finance capital<sup>15</sup>, states that the financial control of credit flows and,

more rarely, part of the company's equity, enables banks to determine companies' policy. A major instrument to enforce this control is the presence of bank fiduciaries on company boards.

The second approach is constituted by the models of resource dependence, which justify the existence of ID on the basis of the optimising behaviour of companies. Restrictions on access to resources, information or market stimulate companies to create business groups, whose presence can be detected through the existence of ID. The hypothesis is that companies use ID as means to co-opt or absorb, partially or completely, other organisations with which they are interdependent<sup>16</sup>.

These different perspectives are mutually exclusive as each of them attributes the existence of ID to only one reason, justified by the theory. Opposed to these views, a pluralistic interpretation of ID has more recently been advanced. This approach places emphasis not on the reason but on the plurality of modalities in which the phenomenon of ID manifests itself. The underlying idea is that ID analysis cannot verify any theory *ex ante* but can be very useful in the understanding of a wide range of themes in business history and, more generally, in the ownership structure of a country<sup>17</sup>.

While empirical work which analyses the structure of Italian corporate network through a reconstruction of ID during the fascist period is limited to a couple of pioneer studies<sup>18</sup>, the panorama of available studies for the period following World War II is unquestionably more consistent. Immediately after the War, the Economic Commission of the Ministry for the Constituent Assembly made a very detailed survey of Italian joint-stock companies<sup>19</sup>. The study became the object of a political clash and was eventually never published. Nevertheless, the results were made known in numerous works, due to the commitment of one of the members of the Commission, Emanuele Rienzi of the Socialist Party<sup>20</sup>. The main results of the survey consisted of verifying the existence, in spite of the presence of a large number of small share-holders, of a small number of large corporate groups which exercised a very strong domination over the entire Italian economy by controlling – either directly or indirectly – three-quarters of the share capital of private firms. The concentration of capital was greater in the mining, iron and steel, mechanical, electrical, chemical, and textile industries. Within this framework, the four larger electrical-commercial holdings – Edison, Società Adriatica di Elettricità (Sade), La Centrale, and Strade Ferrate Meridionali (Bastogi) – were particularly prominent. A closely knit intertwining of relations linked these companies to each other and to the other major private groups, such as Fiat (motor vehicles), Montecatini (chemistry), Italcementi (cement), Falck (steel), Pirelli (rubber and cables), Snia-Viscosa (man-made fibres) and Italgas (gas), as well as to the big state-owned holding Iri. Rienzi also analysed – availing himself of techniques that were not particularly refined – the role played by a series of individuals whose presence on boards of directors was especially recurrent<sup>21</sup>.

In the early 1960s, the existence of a 'power of availability' – concentrated above all in the hands of several financial groups linked to the former electricity companies that had been nationalised in

1962 – was confirmed, which managed a dense network of connections that branched out somewhat in all directions and towards all other industrial sectors<sup>22</sup>. When analysing the effects of the nationalisation of the electricity industry, Ragozzino noted that this put an end to a system of industrial and financial relations founded on the larger electrical-commercial companies that had maintained close relations with the banking and insurance systems. The consequence of this was the emergence of a new order in which the larger family groups, such as Fiat and Pirelli, returned to occupy a central position within the Italian corporate network<sup>23</sup>.

In the 1980s, two works by Chiesi<sup>24</sup> introduced to Italy the use of formalised network analysis techniques. The author pointed out the peculiarities of the Italian corporate network, attributing them to the range and modalities of state intervention in the economy and illustrating the existence in the mid-1970s of a centre of the system inside of which two large poles cohabited, based respectively on state and on privately owned enterprises<sup>25</sup>. Their integration was guaranteed by the *zipper* function carried out by some companies – such as Sme, Bastogi and, to a lesser extent, Snia-Viscosa and Tubificio di Brescia – on the boards of directors of which sat several of the major players in companies from both poles. Another aspect emphasised by Chiesi regarded the absence of the two largest private groups, Fiat and Pirelli, from the centre of the network. Such a circumstance, in contrast with Ragozzino's thesis, was consequent on wider marginalisation of the private groups that had intervened after the nationalisation of the electricity industry, to the advantage of the state-owned groups, in the overall structure of the network. Chiesi's analysis also dealt with the classical theme of relations between banks and companies, observing that the absence of large banks – with the sole exception of Imi and Efibanca – from the centre of the system depended on the effects of the 1936 banking law which, by separating the function of the collection of deposits from industrial credit, had rendered it impossible to re-establish those close relations between banks and industries that had so strongly distinguished the period prior to the crisis. Instead, a recent study by Ferri and Trento arrived at substantially different results: basing themselves on a reduced sample of companies, they held that the relations between State-owned and private enterprises were a characterising trait of the Italian capitalistic structure, at least up until 1970. In addition, as regards the relations between banks and companies, the empirical evidence exhibited by them is considerably different from that put forward by Chiesi. In fact, the two authors assert that, in spite of the implicit prohibitions in the banking law, solid cooperative connections between banks and companies represented a permanent trait of Italian capitalism<sup>26</sup>.

## II

The source used for this work is *Notizie statistiche sulle principali società italiane per azioni*, edited by the Associazione fra le Società Italiane per Azioni (Asipa). The project of making an

electronic version of this source, which was started a few years ago, has resulted in the Imita.db database<sup>27</sup>. This contains information regarding companies, boards of directors, and balance sheets of a large sample of Italian joint-stock companies for several benchmark years<sup>28</sup>. The source includes all companies rated on one of the Italian stock exchanges, as well as those companies located in Italy which, at the close of the last balance sheet, had a deposited capital in excess of a certain threshold<sup>29</sup>. The results obtained from its use, therefore, may tend slightly to overestimate the density of the whole system of ID, given the strong correlation between the number of ID and the size of companies.

The data for all Italian joint-stock companies in the source, excluding Italian companies abroad and the foreign ones based in Italy, have been processed. As far as the directors are concerned, only those data regarding the members of a board of directors in the strict sense have been utilised, thus leaving out the members of *Collegi sindacali*<sup>30</sup>. The sample used in this analysis, based on four benchmark years, includes about 130,000 seats belonging to almost 25,000 companies, for a total of more than 85,000 inter-company links. The names of the directors have been carefully standardised, so as to make them as homogeneous as possible. However, it is possible to estimate that the information on boards of directors contained in Imita.db has a margin of error of about 1.5 per cent, as is the case with other similar databases<sup>31</sup>. These errors are mainly due to cases of homonymy, misprints, or shortcomings in the source.

### III

An interlock, as noted above, is the link that is formed between two companies when a person is a director of both. The subject of this link is called *multiple director* (henceforth MD). In this work, we have used primary interlocks without taking into account either the directionality or the strength of the links<sup>32</sup>. In the first case, it is assumed that the direction of the interlock goes from the company in which an individual director has a more important position to that in which his position is of lesser importance. In the second case, the connections between two companies are weighted by taking into account the number of directors who sit on the board of directors of both. To understand a system's structure through the analysis of ID, we must adopt two perspectives: one concerning the single subject – i.e. the director – and the other the company. As a system's structure is the result of an accumulation of directorships held by individuals, the boards of directors must be considered first.

The average size of an Italian board of directors rose slightly between 1952 and 1960 – from 4.46 to 4.52 members – fell to 3.86 in 1972, to rise again to 4.74 in 1983, as shown by Table 1. These values are considerably lower than those observed in the period prior to World War II, when they fluctuated around an average of 6 members per board<sup>33</sup>. However, it must be kept in mind that, if

for in 1952, 1960 and 1983 the size of the sample were quite similar, in 1972 the sample was considerably larger and included a higher number of small and medium-sized companies, which usually had smaller boards.

Table 1. Descriptive statistics of the system

	1952	1960	1972	1983
Companies	6,181	6,371	11,802	5,586
Seats	27,427	28,813	45,543	26,470
Directors	17,372	17,917	30,180	18,354
Average size of the board	4.44	4.52	3.86	4.74
CR Cumulation Ratio	1.58	1.61	1.51	1.44
MD % Multiple directors	24.6	25.8	23.4	23.2

An important measure in the description of the system is the ratio of MD to the total number of directors. As shown in Table 1, this ratio was stable over the entire period, which probably indicates that the links between companies were always guaranteed by a similar proportion of directors, although for 1960 it reaches a high of 25.8 per cent, then falls to 23.2 per cent in 1983. However, this value is not much lower than that observed for the pre-World War II period<sup>34</sup>. Another synthetic measure of the system is the *cumulation ratio* (CR), that is, the average number of positions held by a single director. This, too, showed only small variations over time. The two indicators show a high level of concentration of the system when the latter is observed from the director's viewpoint. The high CR is due to both the high ratio of MDs to the total number of directors and the remarkably high number of places held by MDs.

The existence of a conspicuous number of MDs holding a total of more than 10 offices is indicative of the concentration of the system. Table 2 shows that the total proportion of seats held by these directors was higher than 4.5 per cent (5.3 per cent in 1952, 4.7 per cent in 1972, with a 6.3 per cent peak in 1960) in the first three benchmark years, to drop to 1.70 per cent in 1983. These directors are commonly referred to as *big linkers*. Conversely, the directors holding only one office constituted almost three-quarters of the total, and and accounted for about a half of the positions for all four benchmark years.



Table 2. Distribution of directorships per individual in boards of directors ranked by size (absolute value and percentage)

Number of seats	1952				1960				1972				1983			
	Members of boards		Total of seats		Members of boards		Total of seats		Members of boards		Total of seats		Members of boards		Total of seats	
	ab. val.	%	ab. val.	%	ab. val.	%	ab. val.	%	ab. val.	%	ab. val.	%	ab. val.	%	ab. val.	%
1	13,102	75.42	13,102	47.77	13,298	74.22	13,298	46.15	23,106	76.56	23,106	50.73	14,094	76.79	14,094	53.25
2-10	4,176	24.04	12,868	46.92	4,500	25.12	13,710	47.58	6,929	22.96	20,273	44.51	4,226	23.02	11,927	45.06
11-20	84	0.48	1,163	4.24	104	0.58	1,395	4.84	131	0.43	1,791	3.93	33	0.18	426	1.61
21-30	6	0.03	144	0.53	10	0.06	227	0.79	11	0.04	265	0.58	1	0.01	23	0.09
31-40	2	0.01	64	0.23	5	0.03	183	0.64	2	0.01	66	0.14	-	-	-	-
41-50	2	0.01	86	0.31	-	-	-	-	1	0.00	42	0.09	-	-	-	-
>50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	17,372	100.00	27,427	100.00	17,917	100.00	28,813	100.00	30,180	100.00	45,543	100.00	18,354	100.00	26,470	100.00

If the system is examined from another perspective, that is, by looking at the relationships between companies, some differences appear over the period which do not emerge as clearly when directors are considered. For the purpose of measuring the degree of cohesion in the system, three particular indicators – generally referred to as measures of connectivity – have been employed<sup>35</sup>. The first is the traditional sociometric measure of density, defined as the ratio between the number of links between pairs of units and the number of all possible connections:

$$D = L(r)/L(p)$$

where  $L(r)$  is the number of real connections and  $L(p)$ , defined as  $n(n-1)/2$ , indicates the number of all possible connections. The density indicates the degree of overlap between the companies in the system. Given the same number of companies, a greater density means tighter relations between the sub-systems. It is possible to notice that an increase in the number of companies causes a decrease in the density index: with the same number of links, the increase in the number of companies determines a decrease in the density. The index  $D$  varies between 0 and 1, i.e. for  $L(r)=0$  and  $L(r)=n(n-1)/2$ , respectively. These refer, respectively, to the extreme cases of a total absence of any link and to that of the realisation of all possible links.

The second measure, known as interlock position ratio (IPR), as defined by Mizruchi<sup>36</sup>, represents the proportion of directors with a seat on another board, relative to the number of existing places on all boards of directors. This measures the orientation of the system towards the outside, and varies between  $IPR=0$  in the case in which no link exists, and  $IPR=1$  in the case when each available place in the board of directors gives rise to interlocks.

A third measure, here referred to as *concentration first four* (CFF), represents the ratio between all interlocks and those generated by the first four companies graded by number of interlocks.

It is clear from Table 3 that the density showed a certain stability between the first two benchmark years, which was followed by a 60 per cent decrease in 1972. This can be partly attributed to the increase in the number of companies of about 85 per cent between 1960 and 1972, thus considerably raising the denominator of the density index. The density rose in 1983, even if not up to the values it had in 1952 and 1960. This result was in great part affected by the sharp decrease in the size of the sample that – as we have seen – more than halved between 1972 and 1983. Hence, these results should be considered with great caution. To evaluate more effectively the variations in the density index, we also calculated it from a sample comprising the top 250 and 500 companies in terms of capital. The results of this exercise, which obviously show higher values than those for the whole population of companies, are quite interesting. In this case, it is possible to compare all three benchmark years with no bias, and what emerges is a substantially similar degree of density for 1952 and 1960, with the former presenting a slightly higher value. A strong reduction is confirmed for 1972, which was followed by an even sharper fall in 1983.

*Table 3. Network connectivity*

	1952	1960	1972	1983
Density for the entire sample (x 100)	0.127	0.133	0.050	0.082
Density for the top 250 firms (x 100)	6.6	6.3	4.1	2.2
Density for the top 500 firms (x 100)	3.2	3.1	2.2	1.1
IPR %	0.522	0.538	0.493	0.468
CFE	1.43	1.23	0.93	1.16

Another proof of the weakening of ID over time is provided by the decrease in the IPR index, which remained stable from 1952 to 1960, before significantly decreasing in 1972 and 1983. The CFE also diminished from 1.43 per cent in 1952 to 1.23 per cent in 1960, and to 0.93 per cent in 1972, to then rise to 1.16 in 1983.

The dynamics of the system can be more fully understood by analysing the structure of ID by sector of activity of the companies (see Table 4).

By looking at the overall data we have confirmation of what was observed previously: the number of interlocked companies reached its peak in 1960 (73.1 per cent), before dropping in 1972 to 67.6 per cent and remaining at about the same value in 1983. This result seems to confirm a lower cohesion of the system in the two latest benchmark year, even if it must be recalled that the change in the number of companies between benchmarks could have affected it. These figures are, in any case, lower than those observed in the 1911-36 period<sup>37</sup>.

Table 4. Number of firms interlocked, by sector of activity

Sector of activity	Description	1952			1960			1972			1983		
		TOT	ID	% ID	TOT	ID	% ID	TOT	ID	% ID	TOT	ID	% ID
A-B	Agriculture, forestry and fishing	241	152	63.1	158	101	63.9	256	187	73.0	166	103	62.0
C	Mining and quarrying	127	99	78.0	144	107	74.3	162	115	71.0	36	27	75.0
D	Manufacturing industry	3,019	2,132	70.6	3,163	2,262	71.5	6,140	4,051	66.0	2,910	1,855	63.7
E	Electricity, gas and water supply	170	147	86.5	168	145	86.3	77	65	84.4	26	23	88.5
F	Construction	196	142	72.4	181	124	68.5	427	277	64.9	243	152	62.6
G-H-I	Trade, transport, storage and communication	1,033	731	70.8	951	691	72.7	1,701	1,122	66.0	645	384	59.5
J	Financial intermediation	420	376	89.5	491	473	96.3	794	685	86.3	1,101	954	86.6
<i>j bank</i>	<i>Monetary intermediation (banks)</i>	124	109	87.9	110	106	96.4	134	123	91.8	80	77	96.3
<i>j other financial</i>	<i>Other financial intermediation</i>	224	198	88.4	304	291	95.7	541	449	83.0	927	792	85.4
<i>j insurance</i>	<i>Insurance and activities auxiliary</i>	72	69	95.8	77	76	98.7	119	113	95.0	94	85	90.4
K	Real estate, renting, business activities	804	509	63.3	963	646	67.1	1,970	1,307	66.3	374	268	71.7
L-M-N-O	Public administration, health, social work and other social service activities	171	104	60.8	152	106	69.7	275	170	61.8	85	51	60.0
Total		6,181	4,392	71.1	6,371	4,655	73.1	11,802	7,979	67.6	5,586	3,817	68.3

These insights are further strengthened by an analysis of the average number of interlocks per company, by sector of activity (see Table 5). This indicator, which is not biased by the change occurred in the total number of companies, confirms that, in 1972 and 1983, the cohesion of the system was considerably reduced with respect to the two previous benchmark years. In fact, the average number of interlocks per company amounted to 7.8 in 1952, rose slightly to 8.5 in 1960, but then dropped to 5.9 in 1972 and to 4.6 in 1983. The decrease in the cohesion of the system is made even more apparent by comparing these data with those concerning the period prior to World War II, when the average number of interlocks per company fluctuated between a minimum of 11.0 in 1936 and a maximum 16.8 in 1927<sup>38</sup>.

We then disaggregated the data at a sectoral level. The sectors that showed the greatest connectivity were those of financial intermediation – banks, insurances, and finance companies – and of utilities. In fact, these two sectors had much higher values than all the other ones with respect to both the share of interlocked companies and the average number of interlocks per company. Within the financial intermediation sector, the position of banks and, above all, insurance companies was prominent. The latter, in particular, exhibited the highest values in the whole system for the first three benchmark years, but were superseded by banks in 1983.

Table 5. Average number of interlocks per firm by sector of activity

Sector of activity	1952	1960	1972	1983
A-B	4.7	6.1	5.1	2.7
C	8.7	9.8	6.2	3.5
D	7.1	7.2	5.4	3.8
E	26.8	26.2	8.6	7.5
F	8.4	9.0	5.5	3.0
G-H-I	6.0	7.0	5.4	3.2
J	18.8	21.4	16.3	8.1
<i>J banks</i>	<i>17.9</i>	<i>23.1</i>	<i>22.7</i>	<i>15.0</i>
<i>J other financial</i>	<i>16.7</i>	<i>18.4</i>	<i>12.9</i>	<i>6.9</i>
<i>J insurance</i>	<i>26.7</i>	<i>30.8</i>	<i>24.2</i>	<i>14.0</i>
K	4.7	5.2	4.3	4.9
L-M-N-O	3.6	5.4	4.3	2.6
Total	7.8	8.5	5.9	4.6

The trend of the indicators over time is particularly interesting. As far as financial intermediation is concerned, its values reached their peak in 1960, when 96.3 per cent of companies were interlocked. Also, the average number of interlocks per company showed the highest values in 1960, with 23.1 links for banks, 18.4 for finance companies and 30.8 for insurance companies. In the two following benchmark years, each of the three subsectors reported a reduced connectivity: both indicators dropped considerably for finance companies, while the decrease for banks and insurance companies was less pronounced. In particular, in 1972 the average number of interlocks for banks was similar to that of 1960, with a value of 22.7 as against 23.1, but there was a slight reduction in the number of banks interlocked. The average number of interlocks per bank was slightly higher than in 1927 and considerably higher than in 1936, probably indicating that the role of credit institutions within the system had not been reduced in the early 1970s in spite of the 1936 banking law<sup>39</sup>. However, in 1983 the average number of interlocks per bank dropped to 15.0, a circumstance in line with the diminution of the overall cohesion of the system.

The trend of utilities, within which the electrical companies prevailed – until the electricity industry was nationalised in 1962 – appears to be particularly significant. In fact, the number of interlocked companies in this sector remained largely stable for the entire period, with values of about 85 per cent. However, the average number of interlocks per company varied considerably, moving from 26.8 in 1952 to 26.2 in 1960, to only 8.6 in 1972 and 7.5 in 1983. The utilities companies that survived the nationalisation of the electricity industry retained their connections to the rest of the

system, but with the disappearance of the major electrical groups, they no longer constituted its centre.

As is well known, the electricity industry in Italy had its origin in the late XIX century. In the 1920s, it went through a process of concentration which led to the formation of five regional monopolies: Sip in Piemonte; Edison in Lombardia, Liguria and Western Emilia; Sade in the north-east, La Centrale in the centre including the capital, Rome; and Sme in the south<sup>40</sup>.

In the 1930s, after the collapse of the mixed banks and the setting-up of the state-owned holding Iri, the larger electrical-commercial companies assumed a pre-eminent position within the Italian corporate network. A close-knit intertwining of relations linked these companies to each other and to the other major state-owned and private groups. These relationships had their pivot in Bastogi, a former railway company which, after the nationalisation of the Italian railways in 1905, had turned into an electricity holding by investing the sums that it had received from the state, in compensation for the railway nationalisation, in securities of the major electrical-commercial companies. As a result, in the late 1930s Bastogi became the locus in which the new equilibria of Italian corporate network were settled. A new controlling syndicate configured Bastogi as a sort of centaur<sup>41</sup>, half private and half state-controlled, jointly run by state-owned shareholders such as the Bank of Italy, Iri, and some state-owned banks, and by the major private groups such as Edison, Sade, La Centrale, Fiat, Pirelli, and Ior, the Vatican bank.

After World War II a sizeable proportion of members of the Economic Commission of the Ministry for the Constituent Assembly were in favour of the nationalisation of the electricity industry, but after the expulsion of the left-wing parties (Communist and Socialist) from government in 1947 this proposal was set aside. However, in 1962 the Socialists set the nationalisation of the electricity industry as a binding condition for their entry into a centre-left governing coalition with the Christian Democrats and other smaller parties. In the same year, the nationalisation law was passed by the Parliament and with the founding of Enel the State became Italy's sole electricity supplier.

The law forced the state to give the former electrical-commercial companies the sum of 2,200 billion lire in compensation for nationalisation. The underlying idea was that they could invest that money to boost new fast-growing industries. However, the former electrical-commercial companies, including Bastogi, failed to define a coherent strategy for the use of such funds, and scattered them in a range of unrelated investments in chemistry, paper mills, agro-food, white goods, construction, real estate, department stores, tourism, and local public services. As a result, they suffered heavy losses, most of them were taken over and by the early 1970s had disappeared from the centre of the Italian corporate network<sup>42</sup>.

Table 6. Top 30 companies by number of interlocks and sector of activity

Sector of activity	1952	1960	1972	1983
D	5	6	5	7
E	14	9	1	-
F	-	-	-	-
G-H-I	1	-	1	-
J	7	12	20	22
<i>J banks</i>	<i>1</i>	<i>4</i>	<i>6</i>	<i>2</i>
<i>J other financial</i>	<i>5</i>	<i>4</i>	<i>9</i>	<i>17</i>
<i>J insurance</i>	<i>1</i>	<i>4</i>	<i>5</i>	<i>3</i>
K	3	3	3	1
L-M-N-O	-	-	-	-

An analysis of the top 30 companies graded by number of interlocks (see Table 6) enables us to develop several further considerations. In 1952, there were four companies – Efi, Coniel, Bastogi, and Ras – which, above and beyond their ownership structure, seemed to function as *bridging* companies between the major state-owned and private groups (see Table 7a) . A strong prevalence of electrical companies can be noted, with 14 presences out of 30. Among the remaining companies, there were five manufacturing firms, five finance companies, and only one bank.

Table 7a. List of the top 30 companies by number of interlocks (1952)

#	Company	Nr. ID	Sector of activity
1	E.F.I. ENTE FINANZIAMENTI INDUSTRIALI	181	J other financial
2	CONIEL COMPAGNIA NAZIONALE IMPRESE ELETTRICHE	180	E
3	SOCIETÀ ITALIANA PER LE STRADE FERRATE MERIDIONALI	173	J other financial
4	RAS RIUNIONE ADRIATICA DI SICURTÀ	159	J insurance
5	IDROELETTRICA SARCA MOLVENO	129	E
6	EDISON	126	E
7	TORINO ESPOSIZIONI	116	O
8	CONDOR SOCIETÀ PER L'INDUSTRIA PETROLIFERA E CHIMICA	111	D
9	FRANCO TOSI	100	D
9	CREDITO COMMERCIALE	100	J banks
11	ELETTRICA SARDA	99	E
11	OSRAM	99	D
11	S.R.E. SOCIETÀ ROMANA DI ELETTRICITÀ	99	E
14	AUTOSTRADA TORINO MILANO	98	F
15	GENERALE IMMOBILIARE DI LAVORI DI UTILITÀ PUBBLICA ED AGRICOLA	97	K
15	SOCIETÀ ELETTRICA SELT VALDARNO	97	E
17	SOCIETÀ PER LO SVILUPPO AGRICOLO DEL MEZZOGIORNO SVAM	96	K
17	CIELI COMPAGNIA IMPRESE ELETTRICHE LIGURI	96	E
19	ISTITUTO DI CREDITO PER LE IMPRESE DI PUBBLICA UTILITÀ	94	J banks
20	F.I.A.T.	93	DM
21	S.I.P. SOCIETÀ IDROELETTRICA PIEMONTE	92	E
22	EMILIANA ESERCIZI ELETTRICI	89	E
22	IDROELETTRICA MEDIO ADIGE	89	E
22	OROBIA	89	E
25	LA CENTRALE	87	J other financial
25	STEI SOCIETÀ TERMO ELETTRICA ITALIANA	87	E
25	VIZZOLA SOCIETÀ LOMBARDA DISTRIBUZIONE ENERGIA ELETTRICA	87	E
28	SADE SOCIETÀ ADRIATICA DI ELETTRICITÀ	86	E
29	CARTIERE BURGO	85	D
30	SIEO IMPRESE ELETTRICHE D'OLTREMARE	84	E

Table 7b. List of the top 30 companies by number of interlocks (1960)

#	Company	Nr. ID	Sector of activity
1	SOCIETÀ ITALIANA PER LE STRADE FERRATE MERIDIONALI	196	J other financial
2	RAS RIUNIONE ADRIATICA DI SICURTÀ	185	J insurance
3	ITALCONSULT	150	J other financial
4	L'ASSICURATRICE ITALIANA	134	J insurance
5	FRANCO TOSI	133	D
6	EDISON	129	E
7	ITALPI SOCIETÀ ITALIANA PARTECIPAZIONI INDUSTRIALI	127	J other financial
8	MONTECATINI	125	D
9	CREDITO COMMERCIALE	124	J banks
10	EDISONVOLTA	117	E
11	ELETTRONUCLEARE ITALIANA	116	E
12	FINSIDER	113	J other financial
13	PIRELLI	112	D
14	SME SOCIETÀ MERIDIONALE DI ELETTRICITÀ	110	E
15	ITALCEMENTI	109	D
16	TORINO ESPOSIZIONI	105	K
17	CARTIERE BURGO	104	DE
18	STEI SOCIETÀ TERMO ELETTRICA ITALIANA	104	E
19	GENERALE IMMOBILIARE DI LAVORI DI UTILITÀ PUBBLICA ED AGRICOLA	102	K
20	FRATELLI BORLETTI	101	D
21	SADE SOCIETÀ ADRIATICA DI ELETTRICITÀ	100	E
22	BANCA UNIONE	99	J banks
22	ITALGAS	99	E
24	OROBIA	98	E
25	COFINA COMPAGNIA FINANZIARIA INVESTIMENTI AZIONARI	96	J other financial
25	EFIBANCA ENTE FINANZIARIO INTERBANCARIO	96	J banks
25	SOCIETÀ ASSICURATRICE INDUSTRIALE	96	J insurance
28	ASSICURAZIONI GENERALI	94	J insurance
28	CIELI COMPAGNIA IMPRESE ELETTRICHE LIGURI	94	E
30	BANCA PROVINCIALE LOMBARDA	93	J banks

Table 7c. List of the top 30 companies by number of interlocks (1972)

#	Company	Nr. ID	Sector of activity
1	RAS RIUNIONE ADRIATICA DI SICURTÀ	194	J insurance
2	BASTOGI FINANZIARIA	183	J other financial
3	L'ASSICURATRICE ITALIANA	150	J insurance
4	UNIONE ITALIANA DI RIASSICURAZIONE	124	J insurance
5	FRANCO TOSI	121	D
6	EFIBANCA ENTE FINANZIARIO INTERBANCARIO	120	J banks
7	CREDITO COMMERCIALE	116	J banks
8	BANCA D'AMERICA E D'ITALIA	113	J banks
9	SNIA VISCOSA SOCIETÀ NAZIONALE INDUSTRIE APPLICAZIONI VISCOSA	111	D
10	GENERALE IMMOBILIARE DI LAVORI DI UTILITÀ PUBBLICA ED AGRICOLA	108	K
11	BANCA PROVINCIALE LOMBARDA	105	J banks
12	ITALCABLE SERVIZI CABLOGRAFICI RADIOTELEGRAFICI E RADIOELETTRICI	104	I
13	ITALGAS SOCIETÀ ITALIANA PER IL GAS	103	E
14	SME SOCIETÀ MERIDIONALE FINANZIARIA	102	J other financial
15	ISTITUTO BANCARIO ITALIANO	98	J banks
15	STET SOCIETÀ FINANZIARIA TELEFONICA	98	J other financial
17	LA CENTRALE FINANZIARIA GENERALE	97	J other financial
18	UNIONE SUBALPINA DI ASSICURAZIONI	96	J insurance
19	ITALCEMENTI FABBRICHE RIUNITE CEMENTO	95	D
19	ISTITUTO DI CREDITO PER LE IMPRESE DI PUBBLICA UTILITÀ	95	J other financial
21	CEMENTERIE SICILIANE	94	D
21	TORO ASSICURAZIONI COMPAGNIA ANONIMA D'ASSICURAZIONI TORINO	94	J insurance
21	ISTITUTO CENTRALE DI BANCHE E BANCHIERI	94	J banks
24	MEDEDIL SOCIETÀ EDILIZIA MEDITERRANEA	93	K
24	BANCO DI ROMA	93	J banks
26	I.M.I ISTITUTO MOBILIARE ITALIANO	92	J other financial
27	INIZIATIVE NAZIONALI AUTOSTRADALI SINA	90	K
27	ITALPI SOCIETÀ ITALIANA PARTECIPAZIONI INDUSTRIALI	90	J other financial
29	INSUD NUOVE INIZIATIVE PER IL SUD	89	J other financial
29	SIEMENS ELETTRA	89	D

Table 7d. List of the top 30 companies by number of interlocks (1983)

#	Company	Nr. ID	Sector of activity
1	ISTITUTO CENTRALE DI BANCHE E BANCHIERI	78	J other financial
2	SNIA BPD	75	D
3	UNIONE ITALIANA DI RIASSICURAZIONE	72	J insurance
4	RAS RIUNIONE ITALIANA DI SICURTÀ	69	J insurance
5	SOCIETÀ ITALIANA ASSICURAZIONE CREDITI SIAC	64	J insurance
6	METALLURGICA ITALIANA SMI	58	J other financial
7	MONTEDISON	57	D
8	EFIBANCA ENTE FINANZIARIO INTERBANCARIO	55	J other financial
8	FINANZIARIA DI SVILUPPO FIDIS	55	J other financial
10	LA CENTRALE FINANZIARIA GENERALE	54	J other financial
11	ING. C. OLIVETTI & C.	53	D
11	COMPAGNIE INDUSTRIALI RIUNITE CIR	53	J other financial
11	CIGAHOTELS COMPAGNIA ITALIANA GRANDI ALBERGHI	53	J other financial
11	EUROMOBILIARE	53	J other financial
15	FIAT AUTO	52	D
16	BANCA D'AMERICA E D'ITALIA	51	J banks
17	IFIL FINANZIARIA DI PARTECIPAZIONI	50	J other financial
18	SOCIETÀ PER LO SVILUPPO DI INTESE IMPRENDITORIALI CONSORTIUM	49	J other financial
18	I.M.I. ISTITUTO MOBILIARE ITALIANO ROMA	49	J other financial
20	GILARDINI	48	D
20	ISTITUTO FINANZIARIO PER L'INDUSTRIA EDILIZIA FINANCE	48	J other financial
22	ATTIVITÀ IMMOBILIARI	47	K
22	GENERALE MOBILIARE INTERESSENZE AZIONARIE GEMINA	47	J other financial
24	BASTOGI IRBS	46	J other financial
24	AGRICOLA FINANZIARIA	46	J other financial
24	COMPAGNIA FINANZIARIA LIGURE PIEMONTESE COFILP	46	J other financial
27	ACCIAIERIE E FERRIERE LOMBARDE FALCK	45	D
28	TEKSID	44	D
28	NUOVO BANCO AMBROSIANO	44	J banks
28	FINANZIARIA REGIONALE PIEMONTESE	44	J other financial

In 1960, more than a half of the companies included in the top 30 in the previous benchmark year no longer appeared (see Table 7b), indicating that a substantial change had occurred. The number of electrical companies dropped to nine, while the financial intermediaries rose to 12: four finance companies, four banks and four insurance firms. Manufacturing firms, in their turn, rose to six. The overall impression is that the presence of *bridging* companies limited to the electricity sector was reduced, and replaced by companies – above all in insurance and finance – in which the large electrical groups cohabited with the representatives of the other industrial sectors.

In 1972, the rate of permanency decreased by one (from 13 to 12) from the previous benchmark year (see Table 7c), in spite of the nationalisation of the electricity industry and the transformation of the former electrical companies into finance holdings. As a consequence, the utilities sector almost disappeared from the top 30, while financial intermediaries marked a further substantial increase: the number of finance companies rose to nine, banks to six and insurance companies to five.

In 1983, the rate of permanency had further decreased to nine (see Table 7d). Finance companies jumped to 17, therefore establishing a strong prevalence among the top 30. Manufacturing firms, in their turn, rose to seven, from five in the previous benchmark year. Conversely, insurance companies dropped to three and banks to two. Also real estate companies fell from three to one while utilities definitely disappeared from the top 30.



An analysis of the behaviour of *big linkers* (henceforth BL) can be very useful for interpretative purposes. A close examination was thus made of the 25 most important BL who, in each benchmark year, accumulated the largest number of positions<sup>43</sup>. The list of these individuals, together with the age and attendance figures for each one, is provided in Table 8. Above all, it can be noted that several individuals appear several times. One individual, Carlo Pesenti, appeared in all the four benchmark years considered; four (Massimo Spada, Mizzi, Radice Fossati and Lazzati) figure in the list for three benchmark years; ten (Valerio, De Biasi, Bruno, Bonadè Bottino, Beria, Bozzola, Samaritani, Bobbio, Rossello, and Prinetti Castelletti) appeared in 1952 and 1960, but not in 1972 and 1983, while Torchiani, who was absent in 1952, met both in 1960 and 1972, to then disappear in 1983. The 104 places available were covered by 83 persons, 16 of whom (19 per cent of the total) appeared more than once. The continuity appears very strong between 1952 and 1960: of the 26 BL identified in 1952, 13 of them (50 per cent) also appeared in 1960. Instead, the subsequent interval seems to have been marked by considerable and increasing discontinuity: six of the 25 BL (24 per cent) of 1960 also figured in 1972, and only three of the 29 BL (little more than 10 per cent) of 1972 also appeared in 1983.

Table 9 reports some personal data on BL. The mean age increased constantly in the first three benchmark years, raising from 59 years in 1952 to 60 in 1960, and to 62 in 1972. It is, therefore, surprising that the more accentuated renewal which occurred in the population of BL during the second interval considered (from 1960 to 1972) was marked by an ageing, rather than by a rejuvenating, of them. The impression is that the real generational change amongst BL occurred only in the subsequent interval (from 1972 to 1983), when an even more pronounced (nearly 90 per cent) renewal in the population of BL was characterised by a remarkable rejuvenation of them, with the mean age falling from 62 to 56 years and the median age from 62 to 51 years.

Table 10 shows the distribution of BL by region of birth. First of all, it can be noted that six regions out of 20 never supplied any BL. Among the regions represented, in 1952 Lombardia was pre-eminent, but its importance diminished in the next two benchmark years. In contrast, Emilia-Romagna emerged, catching it up in first place in 1972. All things considered, while in 1952 and 1960 there was a prevalence of individuals born in the regions of the country of most established industrialisation – the *Industrial Triangle* formed by Piemonte, Lombardia and Liguria – in 1972 this was no longer the case. In that year, in fact, the *Industrial Triangle* was superseded by the regions of central and north-eastern Italy of more recent industrialisation (Trentino-Alto Adige, Emilia-Romagna, Toscana, and Umbria), while the BL born in southern Italy and on the islands also increased over the period considered.

Table 8. Big linkers in the benchmark years

1952			1960			1972			1983		
Surname and name	Age	Seats	Surname and name	Age	Seats	Surname and name	Age	Seats	Surname and name	Age	Seats
1. Valerio Giorgio	48	44	1. Pesenti Carlo	53	38	1. Spada Massimo	67	42	1. Gianzini Enrico	69	23
2. De Biasi Vittorio	57	42	2. Spada Massimo	55	38	2. Peenti Carlo	65	33	2. Mattioli Francesco P.	43	20
3. Bruno Luigi	56	33	3. Bruno Luigi	64	37	2. Zuccolotto Oscar	-	33	3. Spada Antonio	51	16
4. Ottolenghi Enrico	64	31	4. Bozzola Carlo	-	35	4. Quaratino Licio	-	26	4. Gardini Raul	50	15
5. Pesenti Carlo	45	28	4. De Biasi Vittorio	65	35	4. Radice Fossati Eugenio	62	26	4. Pesenti Carlo	76	15
6. Cartesegna Francesco	70	27	6. Rossello Mario	83	26	4. Riffeser Bruno	46	26	4. Pesenti Giampiero	52	15
7. Spada Massimo	47	25	7. Samaritani Aldo	56	25	4. Rovelli Nino	55	26	4. Segre Giulio	-	15
8. Bonadè Bottino Vittorio	63	22	7. Valerio Giorgio	56	25	8. Zurzolo Antonio	49	25	8. Garrino Gian Luigi	48	14
9. Beria Biagio	63	21	9. Bonadè Bottino Vittorio	71	22	9. Monti Attilio	66	24	8. Lattuada Carlo	70	14
9. Corridori Giuseppe	64	21	9. Lodolo D'Oria Alessandro	-	22	10. Dosi Mario	69	23	8. Sterza Giancarlo	-	14
11. Bozzola Carlo	-	20	9. Mizzi Leonida	56	22	10. Ferrari Alberto	58	23	11. Del Pra Giovanni	49	13
11. Malnati Carlo	43	20	9. Torchiani Tullio	59	22	10. Galeati Giambattista	72	23	11. Garuzzo Giorgio	45	13
11. Nogara Bernardino	82	20	13. Beria Biagio	71	21	13. Bassetti Giovanni	79	22	11. Piantà Enrico	57	13
11. Samaritani Aldo	48	20	13. Marchesano Enrico	66	21	14. Martelli Giuseppe	65	21	11. Romiti Cesare	60	13
15. Boeri Giovanni Battista	69	19	13. Prinetti Castelletti Ignazio	-	21	15. Baldini Riccardo	62	20	11. Saporiti Gian Alberto	-	13
15. Parodi Giacomo	-	19	16. Bobbio Carlo	74	19	15. Costa Angelo	71	20	16. Belloni Antonio	64	12
15. Vola Annibale	-	19	16. Radice Fossati Eugenio	50	19	15. Mizzi Leonida	68	20	16. Castenuovo Tedesco Michele	59	12
18. Bobbio Carlo	66	18	16. Rossi Guido	29	19	15. Torchiani Tullio	71	20	16. Conciato Alvise	-	12
18. Camerana Giancarlo	43	18	19. Faina Carlo	66	18	19. Villa Alessandro	-	19	16. De Benedetti Carlo	49	12
18. Luraghi Giuseppe	47	18	19. Lazzati Gaetano	45	18	20. Bassetti Giansandro	49	18	16. Falck Alberto	45	12
18. Mizzi Leonida	48	18	19. Zanon Valgiurata Lucio	66	18	20. Bernero Virginio	-	18	16. Ferruzzi Arturo	43	12
18. Prinetti Castelletti Ignazio	-	18	22. Balella Giovanni	67	17	20. Bucarelli Domenico	-	18	16. Lazzati Gaetano	68	12
18. Rossello Mario	75	18	22. Falck Giovanni	60	17	20. Capanna Alberto	62	18	16. Radice Fossati Eugenio	73	12
18. Valletta Vittorio	69	18	22. Fontaliran Jean	-	17	20. Corsi Giorgio	49	18	16. Vezzalini Giancarlo	51	12
25. Bracco Roberto	49	17	22. Molteni Guido	56	17	20. Jacoboni Attilio	67	18	16. Vitale Marco	47	12
25. Casoni Gaetano	73	17				20. Lazzati Gaetano	57	18			
						20. Lolli Ettore	64	18			
						20. Maccaferri Guglielmo	60	18			
						20. Valeri Manera Mario	51	18			

Table 9. Big linkers by age

Age	1952	1960	1972	1983
Minimum	43	29	46	43
Mean	59	60	62	56
Median	60	59	62	51
Maximum	82	83	79	76
Variance ( $s^2$ )	132	122	71	105

Table 10. Big linkers by region of birth

Region	1952	1960	1972	1983
Piemonte	2	4	1	4
Lombardia	9	7	6	10
Liguria	1	-	2	-
Trentino-Alto Adige	-	-	1	-
Friuli-Venezia Giulia	-	-	-	1
Emilia-Romagna	2	2	6	3
Toscana	2	1	1	1
Umbria	1	1	1	-
Lazio	3	2	2	2
Abruzzo	-	-	1	-
Campania	1	1	-	-
Puglia	-	-	1	-
Sicilia	-	1	-	-
Sardegna	-	1	2	-
Total	21	20	24	21
Unknown	5	5	5	4

However, in 1983 the situation was totally reversed, with Lombardia re-surging to the pre-eminent position it occupied more than 30 years earlier and Emilia-Romagna falling remarkably behind, superseded by Piemonte too. Such a circumstance probably reflected a coming back of the larger finance and industrial groups of the *Industrial Triangle* to the centre of the system as a consequence of their massive technological and organisational restructuring (and return to profitability) in the early 1980s.

The level of education of BL was very high (see Table 11): there were 21 university graduates in 1952, 22 in 1960, 24 in 1972, and 19 in 1983. Significant changes were registered in the type of university degree held. While degrees in engineering prevailed in 1952, over the course of time the situation changed to the advantage of graduates in jurisprudence and, above all, in economics and

business management. This might be an indication of the declining importance of a technical culture, previously identified by calculating the number of engineers present on boards of directors of all the joint-stock companies, which decreased from 17.7 per cent for 1952 to 14.3 per cent for 1972<sup>44</sup>.

Table 11. *Big linkers by level of education*

	1952	1960	1972	1983
University degree	21	23(*)	24	19
- <i>Engineering</i>	10	12	7	6
- <i>Jurisprudence</i>	6	8	7	2
- <i>Economics and business management</i>	4	4	9	10
- <i>Agriculture</i>	1	-	-	-
- <i>Chemistry</i>	-	-	1	1
Diploma	5	2	3	3
- <i>Accountancy</i>	5	2	2	1
- <i>Technical school</i>	-	-	1	-
- <i>Agriculture</i>	-	-	-	1
- <i>Land surveyor</i>	-	-	-	1
Other or not indicated	-	1	2	3
Total	26	26	29	25

(\*) In 1960 the number of university degrees exceeded the number of university graduates by one, since one of the *big linkers*, Carlo Faina, had two university degrees: one in jurisprudence, and the other in economics and business management.

Tables 12 to 15 supply the matrices of the director-by-director adjacencies, which report the ID existing between the BL in the four benchmark years<sup>45</sup>. We can note that, after having risen slightly – from 530 to 566 – between 1952 and 1960, the total number of ID between BL dropped to 364 in 1972 and to 238 in 1983. This was a reduction which, due to its considerable size, appeared as a further sign of a decrease in the degree of cohesion in the system after the nationalisation of the electricity industry, even if the 1983 figure has been affected by the reduced size of the sample covered by Imita.db in that year.

In 1952, only one individual was not linked to any other BL, and only seven others numbered less than ten ID. At the head of the classification there were two very well-known figures, Giorgio Valerio and Vittorio De Biasi – both managing directors of the most important electrical company in the country, Edison – with 68 and 55 ID, respectively. What is striking is the large number of ID (33) that linked these two individuals to each other and both of them to another managing director of Edison, Carlo Bobbio (17 for Valerio and 14 to De Biasi). In third place figured a relatively little-

known figure, Francesco Cartesegna with 43 ID. He actually jumped to first place if we consider the number of other BL with whom at least one ID existed as he was linked to 15 of them.

Also in 1960 there was only one individual who had no ID with any other BL, while another seven had less than ten. The BL with the greatest number of ID were still those linked to the electrical industry. At the top of the classification, in spite of his dropping to seventh place in the number of presences on boards of directors, remained Giorgio Valerio with 58 links, followed by Vittorio De Biasi with 56 links, 27 of which with Valerio. In third place was the other managing director of Edison, Carlo Bobbio, with 43 links (14 with Valerio and 12 with De Biasi).

In 1972, the drastic reduction in the number of ID existing among BL was accompanied by an increase in the number of individuals not connected to any other BL – risen to three – and in those connected by less than ten ID, who jumped to 13 out of 29 BL. The individual with the highest number of ID was Massimo Spada, principal trustee of Vatican finance, with 34 links, followed by Carlo Pesenti – boss of Italcementi, the major cement producer in the country – and Bruno Riffeser – executive of the Monti group, a conglomerate present above all in the oil, sugar, and publishing sectors, which had greatly expanded in the 1960s and early 1970s – with 30 links each.

In 1983, the individuals who had no ID with any other BL had risen to four, while those connected by less than ten ID had diminished to eight. The figure with the greatest number of ID was Cesare Romiti, managing director of Fiat, with 29 links, followed by two other top executives of Fiat, Giorgio Garuzzo and Gian Luigi Garrino, with 26 and 24 links, respectively. Such a circumstance seems to be indicative of the establishing of Fiat in a central position within the system.

Table 12. Matrix of the director-by-director adjacences for the big linkers (1952)

Surname	Valerio	De Biasi	Bruno	Ottolenghi	Pesenti	Cartesegna	Spada	Bonadè B.	Beria	Corrdori	Bozzola	Malnati	Nogara	Samaritani	Boeri	Parodi	Vola	Bobbio	Camerana	Luraghi	Mizzi	Prinetti C.	Rossello	Valletta	Bracco	Casonni	Total
Valerio		33	3	2	2	2	1						2		1			17	1				2	1	1		68
De Biasi	33		2	2		1									1			14	1				1				55
Bruno	3	2		1		10				1								1				12		3	1	1	35
Ottolenghi	2	2	1		1	3	1												1	13							24
Pesenti	2			1		3	6			2			3	1									2	3			23
Cartesegna	2	1	10	3	3			4	1	1			2				1		3			7	1	3		1	43
Spada	1		5	1	6								1											1	1		11
Bonadè B.						4			7		2			1			6		7					4			31
Beria						1		7			2						4		4					2			20
Corrdori			1	1	2	1									1												5
Bozzola								2	2								3		1				1				9
Malnati																											0
Nogara	2				3	2	1							1	3	1								1	1		15
Samaritani					1			1					1								1			1			5
Boeri	1	1								1			3				1	1					2				10
Parodi													1														1
Vola						1		6	4		3								6						3		23
Bobbio	17	14	1		1										1									1			35
Camerana	1		3	1		3		7	4		1						6							7		1	32
Luraghi				13																							13
Mizzi														1													1
Prinetti C.			12			7																				1	20
Rossello	2	1			2	1	1				1		1		2			1						1			13
Valletta	1		3		3	3	1	4	2				1	1			3		7				1		1		31
Bracco	1		1																					1			3
Casoni			1			1													1			1					4
Total	68	55	35	24	23	43	11	31	20	5	9	0	15	5	10	1	23	35	32	13	1	20	13	31	3	4	530

Table 13. Matrix of the director-by-director adjacences for the big linkers (1960)

Surname	Pesenti	Spada	Bruno	Bozzola	De Biasi	Rossello	Samaritani	Valerio	Bonadè B.	Lodolo	Mizzi	Torchiani	Beria	Marchesano	Prinetti C.	Bobbio	Radice F.	Rossi	Faina	Lazzati	Zanon di V.	Balella	Falck	Fontaliran	Molteni	Total
Pesenti		9	1		3	4	1	4				6		3		3			1			1	6			42
Spada	9					8		2				5		5		1	1		2			2	4			39
Bruno	1			1	1	1				16					17	1	2		1				1			41
Bozzola						1			4				4									1				10
De Biasi	3		1			1		21		1		2		1		12	1						3		10	56
Rossello	4	8	1	1	1			3		1		4		4		2	2	1	4		2		4			42
Samaritani	1																3									4
Valerio	4	2			21	3				1		3		2		14	1		1				3		3	58
Bonadè B.				4									4													8
Lodolo			16		1	1		1				1			12				1							33
Mizzi																										0
Torchiani	6	5			2	4		3		1				4		2			2				3			32
Beria				4					4										1					1		10
Marchesano	3	5			1	4		2				4				1	2		1			2	2			27
Prinetti C.			17							12						1			1							31
Bobbio	3	1	1		12	2		14				2		1	1		1						2		3	43
Radice F.		1	2		1	2	3	1						2		1				1			1			15
Rossi						1															1					2
Faina	1	2	1			4		1		1		2	1	1	1								1			16
Lazzati																	1									1
Zanon di V.						2												1								3
Balella	1	2		1										2					1							7
Falck	6	4	1		3	4		3				3		2		2	1									29
Fontaliran													1													1
Molteni					10			3								3										16
Total	42	39	41	10	56	42	4	58	8	33	0	32	10	27	31	43	15	2	16	1	3	7	29	1	16	566

Table 14. Matrix of the director-by-director adjacences for the big linkers (1972)

Sumame	Spada	Pesenti	Zuccolotto	Quaratino	Radice F.	Riffeser	Rovelli	Zurzolo	Monti	Dosi	Ferrari	Galeati	Bassetti G.	Martelli	Baldini	Costa	Mizzi	Torchiani	Villa	Bassetti G.S.	Bernero	Bucarelli	Capanna	Corsi	Jacoboni	Lazzati	Lolli	Maccferri	Valeri M.	Total
Spada		11			1		1			1				1				5					1	2			9		2	34
Pesenti	11		1		1		1				1			2				6						2			6			30
Zuccolotto							13															8								21
Quaratino								1																						1
Radice F.	1	1												2		1		1									2			8
Riffeser									14			16																		30
Rovelli	1	1	13													1		1				10				1				28
Zurzolo				1							1															3				5
Monti						14						11																		25
Dosi	1												2			1				2			1				3			10
Ferrari		1					1										1									1	2	1		7
Galeati						16		11																						27
Bassetti G.										2										4										6
Martelli	1	2			2													8						1			1			15
Baldini																							2							2
Costa					1		1			1														1						4
Mizzi											1																			1
Torchiani	5	6			1		1							8						1			1	4			2			29
Villa																														0
Bassetti G.S.										2			4						1					1		1				9
Bernero																														0
Bucarelli			8				10																							18
Capanna	1									1					2			1												5
Corsi	2	2												1		1		4		1							1			12
Jacoboni								3			1															1				5
Lazzati																				1						1				2
Lolli	9	6			2		1			3	2			1				2						1						27
Maccferri																														0
Valeri M.	2										1																			3
Total	34	30	21	1	8	30	28	5	25	10	7	27	6	15	2	4	1	29	0	9	0	18	5	12	5	2	27	0	3	364



Table 15. Matrix of the director-by-director adjacences for the big linkers (1983)

Surname	Gianzini	Mattioli	Spada	Gardini	Pesenti C.	Pesenti G.	Segre	Garrino	Lattuada	Sterza	Del Pra	Garuzzo	Piantà	Romiti	Saporiti	Belloni	Castelnuovo	Conciato	De Benedetti	Falck	Ferruzzi	Lazzati	Radice F.	Vezzalini	Vitale	Total
Gianzini			6	1														1			1		1			10
Mattioli	6				1			5				3		6		1									2	18
Spada	1																									6
Gardini																					10					11
Pesenti C.		1				11														1						13
Pesenti G.					11															2			1			14
Segre							1					1	1	1	1				6							11
Garrino		5					1					6		6	3									3		24
Lattuada																										0
Sterza																										0
Del Pra																										0
Garuzzo		3					1	6						6	5	1								4		26
Piantà							1										1		1							3
Romiti		6					1	6				6			5	1								4		29
Saporiti							1	3				5		5										6		20
Belloni		1										1		1												3
Castelnuovo													1						1							2
Conciato	1																									1
De Benedetti							6						1				1					2				10
Falck					1	2																				3
Ferruzzi	1			10																						11
Lazzati																			2							2
Radice F.	1					1																				2
Vezzalini		2						3				4		4	6											19
Vitale																										0
Total	10	18	6	11	13	14	11	24	0	0	0	26	3	29	20	3	2	1	10	3	11	2	2	19	0	238

On the whole, different types of ID sometimes overlapped even in the presence of the same BL. The first type consisted of the memberships that were superimposed on share control relationships. This was the case, above all, of the top managers of large state-owned and private enterprises on the boards of directors of controlled companies. To this type of ID could be attributed, for instance, the numerous presences of Giorgio Valerio, Vittorio De Biasi and Carlo Bobbio on the boards of directors of companies belonging to the Edison group; of Vittorio Valletta and Cesare Romiti in the Fiat group; of Luigi Bruno in the La Centrale group; of Carlo Faina in the Montecatini group; and of Carlo and Giampiero Pesenti in the Italcementi group; of Giovanni and Alberto Falck in the Falck group; of Attilio Monti in the Monti group; of Nino Rovelli in the Sir-Rumianca group; of

Carlo De Benedetti in the Olivetti group; of Raul Gardini in the Ferruzzi group; and of Alberto Capanna in the Finsider group.

More significant, however, were the ID that existed between independent companies. Among these the most important were those that united industrial groups with banks and insurance companies. Only a few of these interlocks showed a directionality – one that was considered typical of the model of finance capital – that went from institutions of financial intermediation (banks and insurance companies) to industrial firms. This circumstance is not at all surprising, for the banking law of 1936 had provided for a clear-cut separation of commercial credit from industrial credit. The only cases attributable to this type are probably those of Massimo Spada (whose numerous presences derived from being the principal fiduciary for Vatican finance; Giovanni Battista Boeri (president of Crediop and Icipu) who in 1952 also sat on the boards of directors of companies of the Edison, Montecatini, Sade, Sme, Pirelli and Italgas groups; Giuseppe Corridori (president of the Banca Nazionale del Lavoro [Bnl]) who in the same year numbered positions also in companies of the Iri, Snia-Viscosa, La Centrale and Gaslini groups; Alberto Ferrari (managing director of the Bnl) who in 1972 sat on the board of directors of a dozen companies of the Montedison group and well as on those of Ibm Italia, Efibanca and the state-owned holding Insud; and Michele Castelnuovo Tedeschi, president of La Fondiaria [one of the major insurance companies in Italy] who in 1983 also sat on the boards of the Banca Commerciale Italiana, of Olivetti Leasing, La Magona d'Italia and Colorificio Romer.

Conversely, there was a fairly good number of banking and insurance company ID generated by top managers of large industrial enterprises. In this case, the directionality did not range from banks (or from insurance companies) to industrial enterprises (as postulated by the finance capital model), but from the latter to the former. Thus, in 1952 the president of Fiat, Vittorio Valletta, also sat on the boards of directors of the Credito Italiano bank, of Efibanca and Ras, while Giorgio Valerio and Luigi Bruno – managing directors, respectively, of Edison and La Centrale, were present on those of Efibanca. In 1960, Carlo Faina, president of Montecatini, was also a board member of the Credito Italiano bank, of Assicurazioni Generali and of the three branches of La Fondiaria. In 1972, the oil industry executive Nino Rovelli, owner of Sir-Rumianca, also set on the board of directors of Ras. In the same way, in 1983 Raul Gardini – managing director of Ferruzzi – was also a board member of Credito Romagnolo while Alberto Falck – president of Falck – sat also on the board of directors of Ras.

While, on the one hand, this type of ID reflected the changed-by-force relations between banks and industries that were consequent on the collapse of the mixed bank, it should not necessarily be seen as an expression of industrial enterprises' domination of banks and insurance companies<sup>46</sup>. Rather, it would seem to be a case of the ID which Pennings termed 'persuasive'<sup>47</sup>. To understand its

nature, it is necessary to consider the fact that the role played by banks and insurance companies was that of collecting information on the general trend of business and on the situation of the individual production sectors, which in a certain sense was similar to that of the trade associations. Banks and insurance companies thus ended up becoming depositories of information to which the top managers of industries could be very interested in having access. On the other hand, banks and insurance companies could have an interest in opening up their boards of directors to the executives of those industrial enterprises which, thanks to their size and solidity, could become top clients of theirs.

Another type of ID consisted of the interlocks generated by individuals who sat on a large number of boards of companies belonging to several different entrepreneurial groups, but without having a ‘strong’ or prevalent affiliation with any of them. Perhaps these were more interesting ID which, most of the time, were generated by relatively unknown figures – such as Francesco Cartesegna (1952), Bernardino Nogara (1952), Mario Rossello (1952 and 1960), Enrico Marchesano (1960), Tullio Torchiani (1960 and 1972), Eugenio Radice Fossati (1960, 1972 and 1983), Gaetano Lazzati (1960, 1972 and 1983), Giuseppe Martelli (1972), Ettore Lolli (1972), and Enrico Gianzini (1983) – who functioned as ‘go-betweens’ between the main state-owned and private groups, in many ways comparable to the ‘network specialists’ described by Stokman and Wasseur<sup>48</sup>. In addition to contributing to a more rapid circulation of information, these ID seem to have performed – as Raffaele Mattioli, the chairman of the Banca Commerciale bank, originally observed<sup>49</sup> – an essential function in ensuring a strategic coordination and stabilisation of the positions of control in the most important private entrepreneurial groups.

One of the most prominent network specialists, illustrated in Figure 1, was Mario Rossello. Born in 1877, Rossello, an accountant, became the Credito Italiano bank alternate auditor in 1913 and the following year, the bank’s statutory auditor. In 1918 he was hired and nominated central manager by the bank. In 1921 he was appointed managing director and remained in that office until 1924, when he transferred to the Banca Nazionale di Credito. He was the managing director of the latter institution and became its vice-president in 1927, upon the merger with the Credito Italiano, which he served as a board member until 1945. After World War II, his role tended to take on more and more of the characteristics of a financier setting himself up as a *trait d’union* between the nation’s leading entrepreneurial groups. Thus, in 1952 he was chairman of Franco Tosi, Compass and Immobiliare Montecavallo, vice-chairman of Italcable and a board member for Edison, Bastogi, Distillerie Italiane (Eridania group), Rinascente (Borletti group), Rhodiatocce (Montecatini group) and another ten minor companies. In 1957, he returned as a board member for the Credito Italiano, a position he left finally in 1966. In the meantime, he had become chairman of Edison, vice chairman of Società Italiana per le Strade Ferrate Meridionali [Bastogi] and a member of the board of

Montecatini, Snia-Viscosa, Ras (insurance) and two small banks: Banca Unione and Credito Lombardo. He died in 1973.

Figure 1. Board positions of Mario Rossello in 1960

Chairman

Distillerie Italiane (Man. 86; 30)	Franco Tosi (Man. 272; 138)	Edison (PU 1; 1)	Italcable (Comm. 159; 11)	Accessa (RE 889; 43)
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Vice Chairman

G. Ricordi & C. (Man. 429; 238)	Industrie Agricole Ligure Lombarda (Finance 133; 30)	Società Italiana per le Strade Ferrate Meridionali (Finance 21; 5)	Italpi (Finance 46; 8)	Casa di cura La Madonnina (Health 1512; 15)
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Managing Director

Officine Grafiche Ricordi (Man. 1268; 716)	Rhodiatoce (Man. 89; 32)	La Rinascente (Trade 100; 7)	S.p.r.i.a. Società per Ricostruzioni Immobiliari (RE 492; 12)
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Director

Adriatica Prodotti in Cementamianto (Man. 2011; 1143)	F.lli Borletti (Man. 382; 207)	Linificio e Canapificio Nazionale (Man. 272; 138)	Metallurgica Italiana (Man. 108; 41)	Montecatini (Man. 2; 1)	Snia Viscosa (Man. 24; 6)
Banca Unione (Bank 808; 111)	Credito Lombardo (Bank 492; 72)	Credito Italiano (Bank 62; 15)	Ras (Ins. 188; 40)	Cofina (Finance 492; 72)	Finanziaria per lo Sviluppo (Finance 108; 26)

Abbreviations: Man. = Manufacturing; PU = Public Utilities; Comm. = Communications; RE = Real Estate; Ins. = Insurance.

Note: The numbers in brackets indicates the following: on the left, the company's position in the ranking of all companies in terms of capital; on the right, the company's position in the sector's ranking. J (financial intermediation, including banks, insurances, and finance companies) is considered as one sector.

A final topic covered by the analysis of BL concerns the relationship between large and small businesses and the presumed dwarfism of Italian industry. In fact, there were some individuals who seem to have been core figures in networks of companies strongly marked by local connections. Here the impression is that we are confronting different types of ID. On the one hand, we find a figure like Guido Rossi – future Consob (the Italian Securities and Exchange Commission) chairman, but originally linked up with Pirelli – who seemed to function as a vector of hierarchical relations, the expression of the dominance of a large industrial group over an aggregate of smaller firms. In fact, in 1960 he was director of Pirelli & C. (the group's holding), two small Milanese banks, three finance companies and about ten small and medium-sized firms operating in Milan in the food, textile and mechanical sectors. On the other hand, it seems that there were links of a different type, illustrated by the cases of Carlo Malnati and Virginio Bernero, two business consultants. Neither of these had a seat on the boards of directors of large companies. Both concentrated their positions in small and medium-sized firms, the former in Milanese firms and the latter in Piemonte. They did not even have any connections with the other BL. It would seem that these figures served a very important function in ensuring the cohesion of two local networks that were the expression of the ability of some of the small and medium-sized firms – especially in the textile and mechanical sectors – to develop interrelations, create alliances and gain access to strategic resources, without this necessarily involving subordinate relations with the banks or larger enterprises.

## V

As we have seen in the preceding sections, during the entire period, banks – together with insurance companies – remained the sector with the highest average number of ID per company in the system. This feature undoubtedly depended on the size of the board of directors of banks, whose average was almost three times as large as that of the other companies. However, at the same time, it was also the sign of the peculiar role played by the banking sector in the system. As can be noted from Table 16, the number of banks included in the sample did not undergo important variations from 1952 to 1972, but showed a substantial drop in 1983 (from 134 to 80). At the same time, MDs within the banking system (directors sitting on boards of two or more banks), after reaching a 9.14 per cent peak in 1972, fell to 6.75 per cent in 1983. However, their number constantly showed values higher than those observed prior to World War II, when the role of banks was commonly believed to be central to the inner working of the Italian economic system.

Table 16. Descriptive statistics of the banking system

	1952	1960	1972	1983
Firms	124	110	134	80
Seats	1,263	1,189	1,599	1,067
Directors	1,192	1,094	1,433	992
Average size of board of directors	10.19	10.81	11.93	13.34
CR Cumulation Ratio	1.06	1.09	1.12	1.08
MD % Multiple Directors	5.03	7.04	9.14	6.75

The same remark can be made for the CR. It therefore seems that the banking system increased its own cohesion, just at the moment – subsequent to the nationalisation of the electricity industry – in which it seemed to be regaining its own centrality within Italian capitalism.

Table 17 shows the number of companies interlocked with banks, by sector of activity. The total number of companies linked to credit institutions remained stable between 1952 and 1960, and increased by 13.3 per cent in 1972, even if their proportion of the total population of enterprises dropped from 19.9 to 12.1 per cent. A further, even if slight, drop was observed in 1983.

Table 17. Number of firms interlocked with banks, by sector of activity

Sector of activity	1952			1960			1972			1983		
	Firms	ID	%	Firms	ID	%	Firms	ID	%	Firms	ID	%
A-B	241	31	12.9	158	26	16.5	256	35	13.7	166	10	6.0
C	127	22	17.3	144	22	15.3	162	17	10.5	36	4	11.1
D	3,019	607	20.1	3,163	640	20.2	6,140	683	11.1	2,910	249	8.6
E	170	66	38.8	168	64	38.1	77	16	20.8	26	7	26.9
F	196	37	18.9	181	32	17.7	427	50	11.7	243	17	7.0
G-H-I	1,033	178	17.2	951	144	15.1	1,701	183	10.8	645	64	9.9
J	296	132	44.6	381	167	43.8	660	214	32.4	1,021	238	23.3
<i>J other financial</i>	224	88	39.3	304	120	39.5	541	155	28.7	927	203	21.9
<i>J insurance</i>	72	44	61.1	77	47	61.0	119	59	49.6	94	35	37.2
K	804	123	15.3	963	133	13.8	1,970	182	9.2	374	54	14.4
L-M-N-O	171	26	15.2	152	21	13.8	275	36	13.1	85	5	5.9
Total	6,057	1,222	20.2	6,261	1,249	19.9	11,668	1,416	12.1	5,506	648	11.8

Table 18. Intensity of interlocks of banks with other firms, by sector of activity

Sector of activity	1952	1960	1972	1983
	Intensity	Intensity	Intensity	Intensity
A-B	4.82	5.76	4.67	1.51
C	3.77	5.35	2.53	0.87
D	25.82	29.50	20.11	9.49
E	12.71	15.21	4.67	2.21
F	6.44	6.05	4.66	1.89
G-H-I	12.73	11.79	10.96	5.14
J	22.15	27.42	31.67	25.24
<i>J other financial</i>	<i>24.23</i>	<i>28.22</i>	<i>31.55</i>	<i>26.03</i>
<i>J insurance</i>	<i>15.33</i>	<i>16.79</i>	<i>20.82</i>	<i>8.93</i>
K	15.12	14.96	12.43	8.02
L-M-N-O	5.34	4.27	4.96	1.26
Total	41.05	46.21	36.73	24.22

In Table 18, the intensity of the links between banks and other sectors is measured, using the ratio of the number of ID between banks and other sectors to the number of all possible ID:

$$r_{ij} = b_{ij} / \sqrt{d_i d_j}$$

where  $b_{ij}$  is the number of ID between sector  $i$  and sector  $j$ ;  $d_i$  is the number of places on the boards of directors of sector  $i$ , and  $d_j$  is the number of places available in sector  $j$ . The greater the index, the higher the intensity of the links between the two sectors. In the case of no interlocks, i.e.  $b_{ij}=0$ , the intensity is  $r_{ij}=0$ .

This index remained stable between 1952 and 1960, but showed a remarkable decrease in 1972. Probably, its reduction mirrored both the general drop in the system's general cohesion, a good part of which was also due to the differing size of the sample, and – as a consequence of the increased weight of small and medium-sized companies in the sample – a specific decrease in the intensity of links between banks and manufacturing firms while, at the same time, those between banks and the other financial intermediaries increased. It seems, therefore, that the banks – together with assurance companies and some finance companies – inherited the role of the electricity companies at the centre of the system, while – at the same time – diminishing their connections with industrial firms.

A further and sharp drop was observed in 1983, probably reflecting – in addition the diminution of the system's general cohesion – a reduction of the weight of banks in the centre of the system to the advantage of major finance companies.

## VI

The analysis carried out confirms that Italian corporate network maintained substantial peculiarities also during the period following World War II. These originated from the rescue operations of the 1930s, which had enlarged the state's presence in the economy to an extent that had no comparisons in the other industrial countries of the West. In associating with the reassertion of the central role of private property in the national economic system, this circumstance confronted the need for coexistence between the area of state-owned enterprises and that of private companies, while avoiding the domination of either of the parties over the other. To this end, it was necessary to guarantee the stability of the orders of control of the major private companies<sup>50</sup>, putting an end to the disturbances and conflicts that had distinguished relations during the early decades of the twentieth century<sup>51</sup>.

The stabilising of the orders of control of the major private groups, among which the large electrical-commercial companies stood out, was favoured by the 1942 Italian Civil Code<sup>52</sup> and pursued by resorting to a multiplicity of instruments: i) the pyramidal group, i.e. the organisation of production activity into an aggregate of legally-separate companies that were linked by chains of control, to the point that the capital owned by the controlling subject was concentrated in a single company placed at the head of the group, and that of the other share-holders was scattered among the subsidiary companies, so as to render ineffective their right to vote; ii) cross participations between head-of-group companies and controlled companies; iii) cross participations between different groups, realised through *bridging* companies; iv) exchanges of shares with insurance companies capable of supplying a cash support; v) the possibility, on the part of the directors, of collecting the vote proxies of the small share-holders without any particular informational obligations or fiduciary duties; vi) the presence of statutory regulations aimed at discouraging takeovers, such as the right of directors to refuse to enter the names of new share-holders in the members' register<sup>53</sup>. These instruments were accompanied by the sharing of board members<sup>54</sup>.

The impression is that, in 1952, the function of ID in this context could be explained through a network of *bridging* companies, divided over two fundamental levels. The first included one group of companies (such as Bastogi, Efi, Ras, Condor, and Generale Immobiliare di Lavori di Utilità Pubblica ed Agricola) which functioned as a *bridge* between all the major state-owned and private groups, both electrical and not. The second consisted of another group of companies (such as Coniel, Idroelettrica Sarca Molveno, Idroelettrica Medio Adige, and Sieo Imprese Elettriche d'Oltremare) which carried out this same role limited to electricity groups, both private and state-owned.



In 1960, the importance of the top-level *bridging* companies seemed to have increased significantly. Evidently, the incumbent threat of a possible nationalisation of the electricity industry as well as the pursuing of a conglomerate-type diversification strategy had induced the major electrical groups to increase their links with the entire spectrum of interests in the large industrial and financial groups, while the relevance of *bridging* companies internal to the electricity sector had been reduced. New top-level *bridging* companies – among which several insurance and finance companies were conspicuous – were added to those already in existence. The continuance of stable and elevated density indexes between 1952 and 1960 thus seems to have been accompanied by a re-equilibrium of the necessary relations between electricity and non-electricity, with the latter included by then in a position of equal prominence at the top of the system.

Nationalisation of the electricity industry led to a dissolving of the old centre of the system. Nevertheless, in 1972, a new centre had been formed or was in the process of being formed. Less strong and cohesive than the preceding one, it hinged on financial intermediaries: banks, insurance companies and the major finance companies. The rise in the number of finance companies among the top 30 in 1972, accompanied by a contemporary one-third drop in the average number of ID per company may indicate that a bifurcation had taken place within that subsector of financial intermediaries. On the one hand, the major and well-established finance companies had been co-opted within the new centre under formation. On the other hand, the considerable increase in the total number of finance companies that occurred between 1960 and 1972 seems to have been due above all to the reduction – as a result of the inversion of the economic cycle – in the self-financing capacity of the majority of industrial groups. This induced them to utilise this instrument – that is, the setting up of new finance companies, often with relatively small boards of directors – to maximise their own capacity to incur debts, the net assets being equal, lengthening the corporate chain and optimising the management of financial resources<sup>55</sup>.

The in-depth examination made of the role of banks within the system arrives at conclusions that were similar to those proposed by Ferri and Trento<sup>56</sup>, diverges from what Chiesi<sup>57</sup> and Amatori and Brioschi<sup>58</sup> upheld, and points out that the role of the banks remained important for the entire period, with the permanency of long-lasting structural links with both industrial firms and insurance companies as well as with finance companies. After the electricity industry was nationalised, banks, together with insurance and major finance companies, returned to the centre of the system, reacquiring – at least in part – the position that they had held in the 1920s<sup>59</sup>.

This evolution was aided by the Bank of Italy, that in the decade following the nationalisation of the electricity industry gave the banking system a monopoly of savings collection in the country – that is, of fund raising for business financing – thereby curbing stock market development<sup>60</sup>, an aspect which neither the ‘law and finance’ nor the ‘political economy’ approach addresses.

It must be emphasised, however, that, while the banks maintained a fundamental role within the Italian capitalist system, the 1936 law produced a range of varied effects. On the one hand, formerly mixed banks were forced to make a profound change in their strategies, which led to an enormous reorganisation. On the other hand, the other banks – particularly the smaller ones – were less affected by the law’s provisions<sup>61</sup>. Both Banca Commerciale and Credito Italiano significantly reduced their connections with other companies, from a few hundred in the 1920s and 1930s<sup>62</sup> to a few dozen, with a constantly downward trend, during the period taken into consideration. At the same time, in 1972, some small private banks, such as the Banca d’America e d’Italia, Credito Commerciale, Banca Provinciale Lombarda, and the Istituto Bancario Italiano, were at the top of the classification by number of ID. Thus, it does not seem that we can share the assertion according to which ‘the interlocks between banks and non-banking companies [...] involved the state-owned banks to an almost exclusive extent’<sup>63</sup>, while, with the exception of Efibanca, these were, instead, placed in a more peripheral position.

The reduction in the degree of the system’s overall cohesion does not seem to have been devoid of repercussions on the links between state-owned and private companies, even if the empirical evidence is weaker in this case. In 1952, the two poles appear to be strongly inter-connected. Of the 26 BL, 17 sat contemporaneously on the boards of directors of state-owned and private companies, and that simply through the links generated by these individuals, the companies belonging to Iri were linked to 15 out of the 20 most important private groups. In 1960, the situation remained substantially unchanged: the BL who accumulated memberships in both state-owned and private companies amounted to 15 out of 25. Through these, the Iri companies numbered links with 14 of the 20 major private groups. In 1972, the BL present in both state-owned and private companies were 16 out of 29; the Iri companies were connected to seven of the 20 major private groups, while two other State-owned groups – Eni and Efim – were connected to five and two large private groups respectively.

Thus, the overall impression is that – contrary to the results obtained by Chiesi<sup>64</sup> using a different sample, according to which in 1976 the centre of the Italian corporate network was marked by the presence of two large poles, one state-owned and the other private, which were clearly distinct one from the other – as far as 1972 is concerned, the events following the nationalisation of the electricity industry had led to the formation of one new centre, that included both the state-owned and the private poles, even if the ties between them were less cohesive than in the 1950s and in the early 1960s. Among the evidence for this conclusion is the assertion that – as in 1972 – more than half of the BL sat contemporaneously on boards of directors of both state-owned and private companies, while none gathered his directorships entirely within the state-owned sector. Furthermore, an analysis on the ten state-owned companies included in the top 30 by number of ID

for that year shows that seven of them shared at least a half of their directors with private companies, ranging from five out of 14 directors for Sme (36 per cent) to nine out of 12 directors for Mededil (75 per cent). And – what is by no means less important – each of these state-owned enterprises was interlocked with a high number of private companies.

However, in 1983 a substantial change seemed to be occurred in the centre of the Italian corporate network. The decreased cohesion of the system was accompanied by an almost complete disappearance of state-owned companies from the top 30 by number of ID, as they fell from ten to one – while the BL who sat contemporaneously on the board of directors of state-owned and private companies dropped to three out of 25. Now, through the links generated by these individuals, the companies belonging to Iri were connected to only four of the 20 major private groups, Eni to two, and Efim to no one. If still in 1972 the centre was characterised by a remarkable presence of companies belonging to the major state-owned groups and by a strong interconnection between these and the major private groups, in 1983 this was no longer the case. Now, on the one hand, the centre seemed to hinge on private companies to a much higher degree than in the past, while state-owned companies were put in a marginal position. On the other hand, state-owned and private companies were much less interconnected by the sharing of board members, a circumstance more in line with Chiesi's argument.

The overall impression is that between 1972 and 1983 the centre of the system had been reshaped around the pivotal role played by Mediobanca, the only real merchant bank operating in the country at that time. Mediobanca never appeared in the list of the top 30 companies by number of ID, however it is possible to notice that nearly two thirds of the companies included in the list for 1983 – especially manufacturing companies belonging to the larger family groups and the larger finance companies – were close allied to it through credit relations, cross participations and Mediobanca's presence in their controlling syndacates, while the remaining companies were mainly bridging companies<sup>65</sup>.

## VII

This paper explores the structure of the Italian corporate network during the 1952-83 period by using the ID technique. The paper confirms that the Italian corporate network maintained substantial peculiarities in the period investigated. In particular, it argues that interlocks played an important role in guaranteeing the stability of the positions of control of the major private companies and their connections with State-owned enterprises. In 1952 and 1960, the system, centred on the larger electrical companies, showed the highest degree of cohesion. This centre dissolved after the nationalisation of the electricity industry in 1962 and was replaced by a new and less cohesive one, hinged on financial intermediaries: banks, insurance companies and some finance

companies. More generally, contrary to conventional wisdom, we argue that banks maintained an important role throughout the period investigated. The 1936 banking law produced varied effects: formerly mixed banks were forced to make a profound change in their strategy and strongly reduced their connections with the rest of the system, while smaller private banks were less affected by the law's provisions, and shifted to a more central position in the system. Furthermore, we showed that ID were not limited to the major groups, but also involved many smaller enterprises. This seems to counter another alleged peculiarity of Italian capitalism, namely the presumed dwarfism of its entrepreneurial base. In fact, as the sharing of one or more directors with another company is an element that makes it possible to broaden a company's confines, we can assert that at least some of the small Italian firms were less small than what was commonly believed.

Finally, the paper shows that state-owned and private enterprises were strongly interconnected from the early 1950s to the early 1970s. This led us to argue that in the 1970s the centre of the Italian corporate network was not marked by the presence of two poles, one state-owned and the other private, clearly distinct one from the other, but by one large pole, that included both state-owned and private enterprises. However, the situation changed in the early 1980s. At that time state-owned companies were marginalised and the centre of the system hinged on private groups and finance companies linked to Mediobanca, the only merchant bank operating in the country.

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- <sup>25</sup> The importance of the state in the Italian economy was considerably greater than in the other western countries. Around the middle of the 1970s, state-owned enterprises in Italy furnished the entire production of energy, 53% of mining, 49% steel and iron industry, 10% of engineering, 9% of chemistry, in addition to having a monopoly over the telecommunications system and to controlling 26% of the transport sector.
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- <sup>27</sup> Imita.db, one of the largest datasets on companies in historical perspective available in the world, is accessible on line at the following address: <http://imitadb.unisi.it>
- <sup>28</sup> Data sets for companies and boards of directors are available for 1911, 1913, 1921, 1927, 1936, 1952, 1960, 1972, 1983; for balance sheets time series are available covering a span from 1900 to 1971.
- <sup>29</sup> Such a threshold was 10 million Italian lire for 1952, 50 million lire for 1961, and 100 million lire for 1973. Thus the sample comprises 26.5% of all joint-stock companies for 1952, 21% for 1960 and 26.1% for 1972 and represents more than 95% in terms of capital for each of the three years. For 1983, when the threshold was elevated to 2 billion lire, the sample represented between 72.4% and 92.6%, with a estimated value of 83.3%, of total capital.
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- <sup>32</sup> J.M. Pennings, *Interlocking Directorates* (San Francisco/London, 1980); S. Wasserman and K. Faust (eds), *Social Network Analysis. Methods and Applications* (Cambridge, Mass., 1994). The sole exception concerns the intensity of the links between banks and the other sectors, in the calculation of which the strength of the connection was also taken into account.
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- <sup>38</sup> This result, for the reasons explained in footnote 33, has been recalculated and thus is not perfectly comparable to what was published in the earlier paper. See Vasta and Baccini, 'Banks and industry'.
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- <sup>45</sup> In social network analysis, adjacency is the graph theoretical expression of the fact that two agents (in our case, two BL) are directly related or connected with one another (in our case, by sitting on the same company board). See Scott, *Social Network Analysis*.
- <sup>46</sup> Only in very few cases were these ID manifested in correspondence with the exceptions permitted to the general rule that prohibited industries from having control over credit institutions. In fact, maintaining the major banks under the control of Iri – in the period after World War II – preserved their managerial autonomy from the possibility of privatisation which would have occurred to the advantage of the larger industrial groups, but paid for by the banks. See G. Conti, 'Le banche e il finanziamento industriale', *Storia d'Italia Einaudi. Annali 15*, pp. 441-504.
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