

Interlocking directorates and concentration in the Italian insurance market*

Giovanni Di Bartolomeo (Sapienza University of Rome)

Paolo Canofari (LUISS, Rome)

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Abstract.

The Italian insurance market represents a peculiar and puzzling case within the European Single Market. Since the radical deregulation process in 1992, standard indicators have shown a low degree of market concentration. However, at the same time, Italian insurance costs still remain among the highest in Europe due to the existence of widespread collusive practices, which have been largely documented by both the Italian Antitrust Authority and empirical evidence. The main channel of anti-competitive behavior seems to be related to the exchange of information. To improve the understanding of its structure, our paper studies interlocking linkages among firms operating in the Italian insurance market. Interlock linkages are apparent when single directors sit on more than one company's board. Thus, interlock linkages can be viewed as a systemic channel of information exchange and a potential source of collusive practices. We distinguish interlock linkages occurring within and between groups operating under a common ownership because companies operating in the insurance sector may be organized in multi-brand holdings. Therefore, we disentangle interlocking directorates as holding business strategies from systemic structures that might represent potential threats for the market competition.

Keywords: interlock linkages, market concentration, information exchange, antitrust regulation.

1. Introduction

The Italian insurance industry represents a special case within the European Single Market. Since the 1994 deregulation, many companies have operated in a more liberalized market, thus exhibiting a low level of concentration. Nevertheless, consumer insurance costs are still the highest in Europe.¹

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¹ According to the Eurostat data, during the 1994-2004 decade, the price of insurance in Italy has increased at a rate that is four times greater than the European average.

Companies operating in this market have been fined several times by the Antitrust Authority for their collusive practices; in particular, their anti-competitive behavior seems to be driven by *ad hoc* reciprocal information sharing (Coccoresse, 2010).

Our paper aims to better understand the structure of the Italian insurance market and to study a potential channel for information transmission between companies. Specifically, we focus on (interlock) linkages among companies that occur when at least one individual (director) belongs to more than one company board (or other governance body) (Mizruchi, 1996). Interlocking directorates occur regularly across industries and have shown potential benefits, e.g., they mobilize a scarce resource such as the expertise of senior managers and directors in large corporations. Nevertheless, the multiplicity of coexisting positions in different boards may represent a serious risk when interlocks involve competitors because they potentially support and facilitate collusive practices or otherwise contribute to the establishment or the maintenance of a tacit or oligopolistic coordination.² Specifically, interlocking directorates “may facilitate tacit collusion or other means of oligopolistic coordination through anticompetitive exchanges of sensitive information regarding sales and prices, product design, and firm strategy. These exchanges may make it easier for economic actors to reach common understanding regarding future behavior and also help firms to more readily detect deviations by others, thus lessening any incentive to deviate.” (Jacobs, 2014: 652).

Interlocking directorates can therefore represent an antitrust problem when the “interlocked” firms are competitors (direct interlock) because they can give access to sensitive and not publicly available information, e.g., firm strategies, demand, costs, and potential entry into other market segments and/or other geographic areas (OECD, 2009). It is worth noting that potentially anti-competitive behavior associated with interlocking directorates cannot be detected by standard market concentration indexes.

According to a report assigned by the European Commission, a comparison of the market concentration between EU countries measured by the Herfindahl-Hirschman Index shows that Italy stands out as a market with a comparatively low concentration ratio in many different sub-markets (Europe Economics, 2009). The report also claims that the market share of the five largest operators in the Italian life- and non-life sector is among the lowest in Europe. However, the same report shows that Italy has the highest average premium on third party liability motor insurance compared to the other countries.³ However, Europe Economics (2009), as in the case of other studies, does

² See, e.g., OECD (2009), Waller (2011), and Jacobs (2014).

³ Specifically, it is approximately double that of Germany, which shows a similar concentration ratio (see Europe

not clearly distinguish brands from ownership—insurance companies that may be organized as several brands for their (small) subsidiaries that form a (big) holding. As a consequence, the concentration ratio may be underestimated at the aggregate level.

The high cost of insurance in Italy has been the subject of debate for a long time. Since deregulation in 1994, according to which public authorities can no longer control tariffs and insurance policy conditions, the Italian insurance market has been in fact the source of many discussions and studies concerning its *actual* degree of market concentration,⁴ which have often been translated into fines imposed by the Italian Antitrust Authority and different legislative reforms (see AGCM, 2008; 2010). In 2000, only six years after the deregulation, a large number of companies were sanctioned by this authority for violations of the competition regulation.⁵ In 2004, the Antitrust Authority also imposed a fine of two millions euros on the *Italian Association of Insurance Companies* (ANIA). The motivation for this intervention was that it favored the diffusion of uniform cost parameters for insurance compensations. The Antitrust Authority also forced ANIA to interrupt its activity of coordination among insurance companies.

The antitrust decisions are supported by empirical evidence. Considering firms for which business in the motor segment exceeds 60% of their total gross premiums during the years 1998-2003, Coccoresse (2010) shows that fined companies acted as if they were under collusive oligopoly conditions, extracting monopoly profits. In line with the Antitrust Authority, the author concludes that their anti-competitive behavior has been mainly founded on information exchanges.

Our claim is that information sharing can be related to a sort of institutionalized and structured channel rather than single actions or temporary agreements to facilitate the exchange of information detected by, e.g., Coccoresse (2010). Interlocking directorates can act as a tool to minimize reciprocal trust problems by placing insiders in places in which they can both monitor and affect other companies' behavior.

Specifically, interlocking directorates could compromise market competition by enhancing coordination among firms and strengthening the sustainability of implicit agreements between competitors. On the one hand, successful coordination requires “agreement” on the common strategy that the different market participants undertake to follow, which can be simplified by the interlocking directorates; on the other hand, the sustainability of implicit agreements strongly

Economics, 2009: Section 6).

⁴ Turchetti and Daraio (2004) analyze entry-exit dynamics, concentration ratio, and the premiums trend to evaluate the impact of legislative events over the period 1982-2000. They conclude that deregulation has shaped market structure and industry performance. See also Porrini (2004), Coccoresse (2010) and Falce (2013).

⁵ The overall amount of fines was 361.5 million euros.

depends on the speed and accuracy by which “cheating” can be detected (OECD, 2009). The stability of collusive practices is strengthened by the trust generated through the interlocking directorates: By placing a director on a cartel partner’s board, each one can rely on an “observer” who can monitor partner activities that could compromise the agreement—such as plans to reduce price, expand capacity, or introduce new products.⁶

However, interlocking directorates may also represent a business strategy for using different brands within the same group while still achieving gains from cooperation and scale effects (although limited in insurance markets; see Cummins and Weiss, 2000). As long as companies may be organized in multi-brand groups, the holding company determines the managers and the directors for all its subsidiaries; optimal business strategies then require that there will be persons serving in several directorates to coordinate the actions of individual firms operating under different brands but characterized by a common ownership. Within a group, therefore, interlocking linkages do not represent a collusive practice.

These linkages clearly operate as a coordination device among firms belonging to the same group. In such a case, concentration is captured considering the market share of the holdings instead of the single companies. If data about holdings are not available, however, data on interlock directorates may represent an alternative measure to assess the effective degree of market competition.

It should also be noted that interlocking directorates may represent a part of an overall corporate governance policy, and they can help to mitigate agency problems between owners and managers (e.g., Berle and Means, 1932; Dooley, 1969; Jensen and Meckling, 1976).⁷ If corporate governance can reduce inefficiencies leading to lower costs, consumers may eventually improve their condition. Because effective governance assumes effective oversight, there is a rationale to justify the fact that directors are chosen between industry members. However, there appears to be substantial evidence that interlocks and other outside personal relationships can be associated with poor performance although causality is not trivial (see e.g., Richardson, 1987; or the survey by Adams *et al.*, 2010: 85).⁸

We aim to contribute to the understanding of the structure of the Italian insurance market by focusing on interlocking directorates to disentangle the creation of linkages between companies belonging to the same holding from the creation of linkages among independent companies. The

⁶ It is worth noting that price policy is not the only possibility to operate in a cooperative manner; see Motta *et al.*, 2006).

⁷ For a more detailed survey of the theoretical model on interlocking linkage, see Drago *et al.* (2011a, 2011b).

⁸ See also Hallock (1997), Haunschild and Beckman (1998), Larcker *et al.* (2005), Fahlenbrach *et al.* (2010), Kramarz and Thesmar (2013).

former represents a business strategy within an industrial group, whereas the latter may affect the degree of market competition—by potentially supporting collusive practices through information sharing.

We first look at the market considering a map of the company connections by interlocking directorates and discussing the aggregate network statistics. Then, we identify insurance groups and study the networks among and within them. Specifically, we look closely at the structure of each group from a network analysis perspective, attempting to identify similar business strategies, and then we consider the relationships between different holdings. Finally, we compute the Herfindahl-Hirschman Index for companies, holdings and also networks of different holdings to relate these different levels of organization to a measure of market concentration.

The remainder of our paper is structured as follows. Section 2 describes our data and methodology. Section 3 reports our results by considering the network of companies and holdings. A final section concludes.

2. Data and methodology

We use information from two main sources, the *Italian ANIA Yearbook* and the register of *Istituto per la vigilanza sulle assicurazioni private* (ISVAP). We obtain data about the CEOs and interlocking directorates among directors of different companies from the former, whereas we identify insurance holdings from the latter source. Data about boards of directors has been directly collected by ANIA from insurance companies. The data include information on 187 Italian insurance companies operating in Italy on July 10th 2004.⁹ The analysis distinguishes between the life and non-life insurance sector: 99 companies of the sample belong to the life sector, 102 belong to the non-life sector and 14 companies belong to both the sectors.

Our methodology is network analysis. We apply this approach to different “units” of investigation: a) firms; b) brands (firms belonging to the same ownership, i.e., the same holding or group); and c) holdings. We identify a network between two units operating in the insurance market by checking for the existence of interlocking directorates. Two units are defined as connected if they share, at least, a member on their board. We draw a map of connections using graph tools and analyze the corresponding network statistics.

A network map is a graph formed by vertices (or nodes) and edges (or lines) connecting them. It is a

⁹ ISVAP data about holdings have been collected since 2014; therefore, we identify the insurance holdings integrating these data with information derived from additional sources (company webpages and balance sheets).

mathematical structure that models pairwise relations (edges) between objects (vertex). The aggregate network statistics are explained in the box below.

1	Vertex	Vertices in the network.
2	Density	The number of actual ties on potential ties; the statistic is obtained by a binary graph (i.e., the presence/absence of a tie).
3	Components	This is the number of components attended in a graph (network). A component is composed of a direct (adjacent) vertex or indirectly connected by other vertices.
4	Main component	Vertices associated with the largest component.
5	Fragmentation	Components divided by the number of vertices attended.
6	Cliques	The index measures the number of cliques attended in a graph. A clique is a subgroup with a 100% density; in this case, a clique is defined by the presence of three nodes (triads) that are connected.
7	Sum degree	The total number of ties; in this case, valued matrices are considered (i.e., two or more than two co-occurrences).
8	Mean degree	Sum degree divided by vertex.
9	Degree std dev	Standard deviation of the variable degree.
10	Degree max	This is the maximum value of degree referring to a vertex x (that is, the maximum number of co-occurrences that involve vertex x).
11	Centralization	This describes vertex structural distribution around a center; for a given network with vertices v_1, \dots, v_n and maximum betweenness centrality c_{max} , the network betweenness centralization measure is $[c_{max} - c(v_i)]$ divided by the maximum possible value, where $c(v_i)$ is the betweenness centrality of vertex v_i .
12	Betweenness (max)	Let b_{jk} be the proportion of all geodesics linking vertex j and vertex k that pass through vertex i . The betweenness of vertex i is the sum of all b_{jk} , where i, j and k are distinct. Betweenness is therefore a measure of the number of times a vertex occurs on a geodesic path. In this case, betweenness (max) is the vertex maximum value of betweenness.

Box 1 – Network aggregate statistics

We first focus on the connections among all the firms operating in the market (companies' network). Then, we focus on the connections between the different brands operating within a single group. We consider all the 12 groups in our dataset, apart from singletons (brands network). Finally, we look at the connections between different holdings (holdings network). The companies' network is useful to visualize a general idea about the insurance market structure. The brand networks

describe how the single holdings are organized and the business strategy they follow to share information within the firms belonging to the same holding. The holdings network describes how competing groups may share some information through their common directors.

3. Empirical results

3.1 The companies' network

The statistics associated with the company network are presented in Table 1. The first row refers to all the companies; the second and third rows refer to those operating in the life- and non-life business sector, respectively.

Table 1 – Network statistics on the insurance companies' network

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(11)	(12)	(13)
all	187	0.028	51	109	0,27	63	1800	9.61	7.92	29	19.06	3362
life	99	0.031	35	25	0,35	26	544	5.49	5.06	16	2.79	144
non	102	0.033	39	56	0,38	27	600	5.88	6.00	21	15.97	839

Legend: (1) Companies (Vertex); (2) Density; (3) Sub-networks (Components); (4) Main component; (5) Fragmentation; (6) Cliques; (7) Sum degree; (8) Mean degree; (9) Degree Std Dev; (10) Degree max; (11) Centralization; (12) Betweenness (max).

The table depicts a densely interconnected structure for the insurance market. There are 187 companies (*vertex*) forming 51 independent sub-networks (*components*). The largest sub-network is comprises 109 companies (*main component*), which represent more than half of all companies. There are 63 *cliques*, which are subgroups of three insurance types perfectly connected by their directors; among these, the information exchange is very strong. On average, each company is connected with 9.61 others (*mean degree*); the total amount of interlock linkages is 1800 (*degree*). In a competitive market, there should be no interlocking directorates: Thus, *sum degree*, *degree* and *cliques* should be equal to zero.

A simple index to assess the level of competition can be derived from the *fragmentation*, i.e., the proportion of sub-networks within the total number of companies. In a competitive environment,

the number of components is normally equal to the number of nodes because all the companies are isolated and the fragmentation is equal to one—the maximum value for the index (the minimum value depends on the number of nodes, which in this case is 0.0053). If fragmentation is smaller than one, insurance groups may operate in the markets or competitors are interlocked by some common directors. Fragmentation in our sample is 0.27. A “competition gap” can be measured as 73% considering the distance between the competitive and the actual value of fragmentation.

The structural features of the other networks (life and non-life) are not significantly different apart from statistics that depend on the sample size—as these networks are formed by a smaller number of companies. The company network of life business is characterized by a density equal to 0.031. There are 26 cliques comprising three nodes and 35 sub-networks. The largest sub-network is composed of 25 companies. Fragmentation is equal to 0.35. In the non-life sector, there are 102 companies and 39 sub-networks. The largest sub-network is composed of 56 nodes.

Focusing on the concentration in the non-life markets, Table 1 shows that there are 544 direct interlock linkages and 1256 indirect interlocks (i.e., 1800-544). The latter seems to be relevant as the life and non-life sector are contiguous and the companies operating are, as discussed, often connected in a single group. So, they can capture the insurance group structure of the market and/or potential indirect links for information sharing between competing companies.

A visual representation of the insurance company network is provided in Figure 1.¹⁰

¹⁰ The network maps for disaggregated life and non-life sectors are available upon request. However, they are very similar to those illustrated by Figure 1.

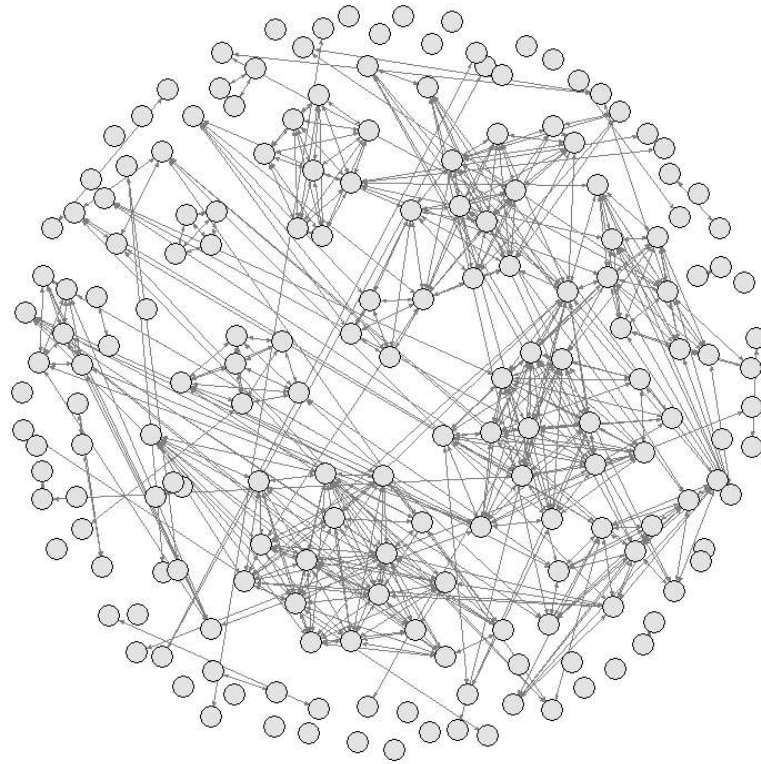


Figure 1 – The insurance company interlocking network

The figure provides a visual projection of the statistics reported in Table 1. It shows the high degree of social concentration in the insurance industry. In a competitive market, the picture should be composed of isolated points. Figure 1 clearly shows a strongly interconnected network with some interconnected clusters of companies and only exceptional situations of isolated or quasi-isolated companies.

3.2 Brands networks

We explore the structure of the networks within a single holding. The connections within the 12 holdings included in our dataset are shown in Figure 2. Each panel represents a holding. The panel displays the connections among the group's companies. The thickness of the arrows reflects the number of directors sitting on both boards. The size of the node instead reflects the number of directors of a company sitting also in other boards of the same holding.

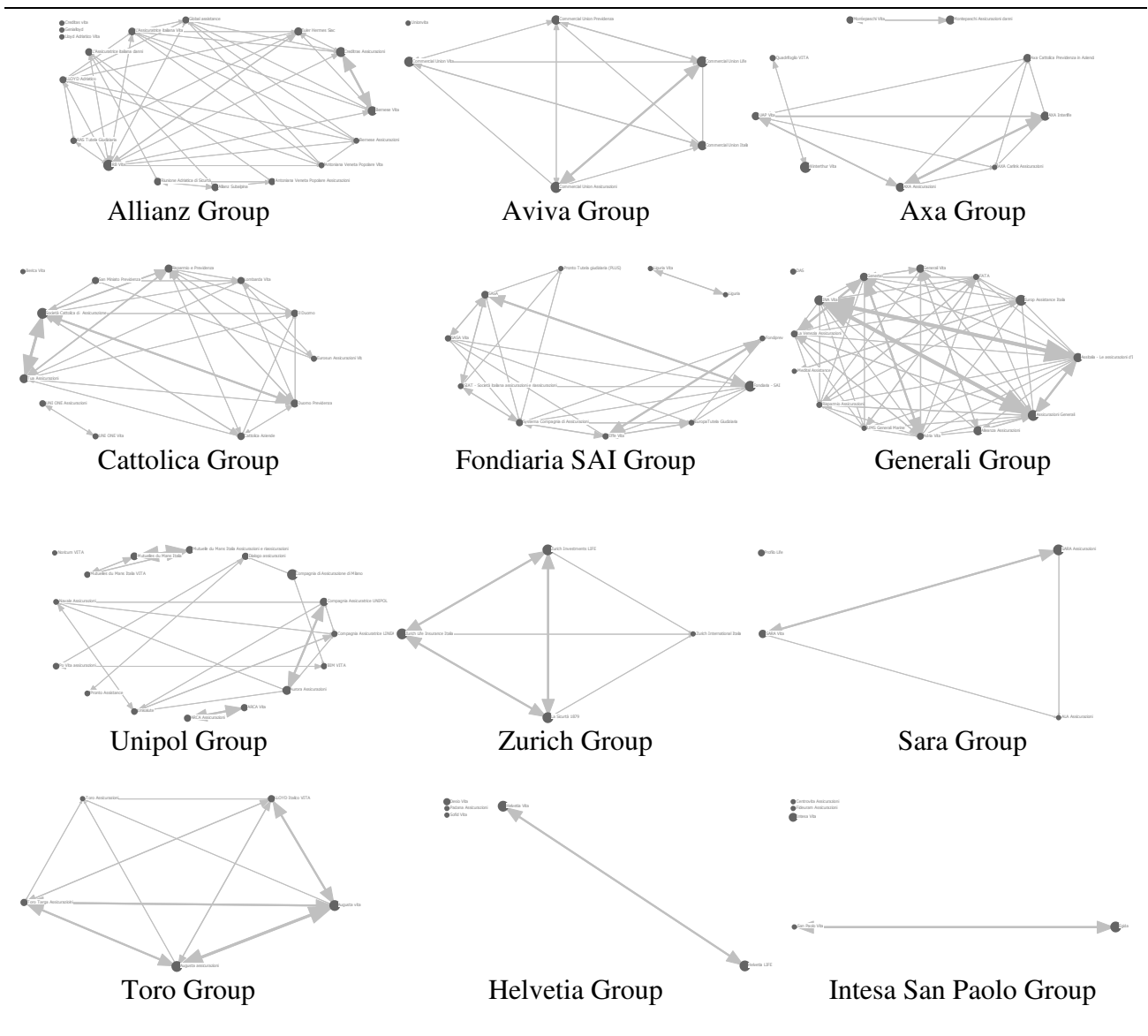


Figure 2 – The holding networks

In general, apart from some outliers, the figure shows that all holdings are strongly interconnected. The type of structure in all cases is usually uniform. There is no evident central (leader) company as in other sectors. Interlocking linkage seems to be an important and commonly used management instrument—as suspected. Recall that, in this paper, interlocking board members does not support collusive practices, but networks are only motivated by the business strategies implemented by the holding.

By inspecting the figure, we note that holdings including a large number of companies (more than 10) follow moderately different strategies. The structure of Generali is characterized by many connections, each company is connected to seven others on average and the density of the network

is equal to 0.6. Except for one outlier, all the companies belong to a unique network. By contrast, Unipol is organized in different subnetworks (four) and displays fewer connections. On average, each company belonging to Unipol is approximately connected with other two. The group density is 0.15. Fondiaria SAI, Cattolica and Allianz represent an intermediate case. However, the latter is similar to Generali; the difference is driven by the outliers; in this case, there are more (three companies are singletons).

Among holdings characterized by a small number of firms, we can distinguish two cases. Aviva, Toro, Sara, and Zurich show a full connected structure (apart from outliers) with high density—close to one. All companies belonging to Toro and Zurich are fully connected by interlocking linkages, i.e., for each of them, there is a director sitting on the board of all the others. The same applies to Aviva and Sara, once one outlier is removed. Intesa San Paolo and Helvetia show instead different structures. They are characterized by a low level of connections and many singletons—reflected in low density rates (close to 0.1). This seems to reflect a sort of specialization of the companies in different segment of the market. Finally, Axa represents a mixed case because it is formed by different sub-networks that reflect both the situations above.

3.3 Holdings network

The network map of holdings is described in Figure 3, which is analogous to Figure 1, but now the unit of observation is the single holding instead of the single company. All companies belonging to the same holding are aggregated.

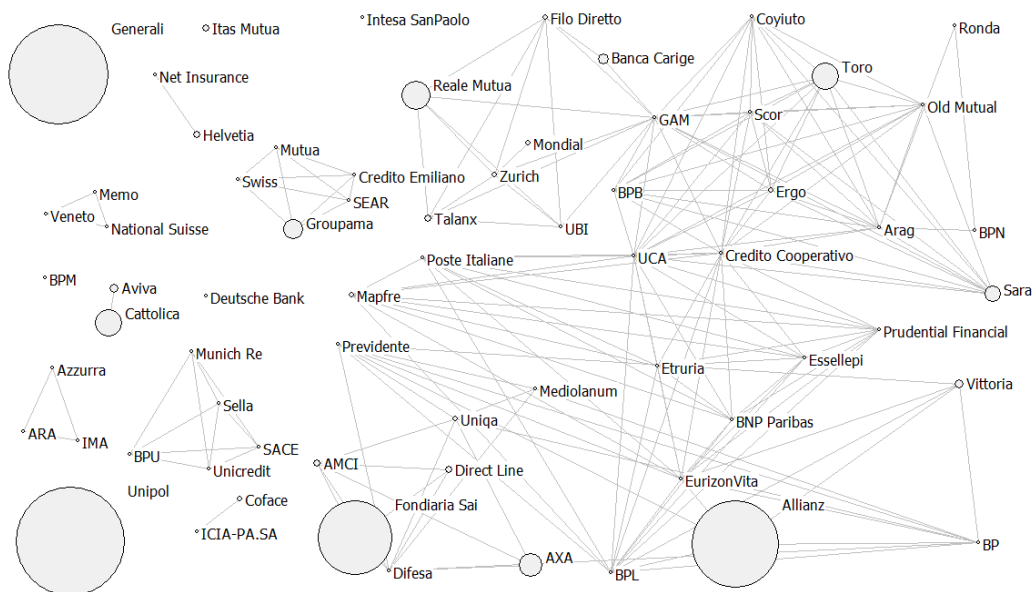


Figure 3 – The network between insurance groups.

The figure shows that holdings are also very connected. Therefore, even after controlling for holdings’ business strategies, the interconnections among companies competing in the insurance market are many. From the 187 companies, we obtain 67 holdings. The figure shows that these 67 holdings form 14 sub-networks. We can use this information to measure the market concentration degree.

Market concentration can be measured using the Herfindahl-Hirschman Index. It can be applied to the companies operating in the market. However, in this case, it underestimates the concentration because it does not distinguish between companies belonging to the same ownership. Having information on the holdings, one can obtain a more refined measure. However, this still underestimates potential information sharing because direct interlocks are ignored. The interlocking linkage between holdings in fact can be viewed as a direct interlock as holdings are competitors—so, in this case, a director sitting on two boards cannot be considered a business strategy of a common ownership.

In the table below, we compare the degree of market competition obtained using the market shares of companies, holdings (aggregating firms belonging to the same ownership), and sub-networks (aggregating holdings that exhibit at least a link by their directors in Figure 3, i.e., the components in the network analysis jargon). The corresponding Herfindahl-Hirschman Indexes are described in Table 2.

Table 2 – Brands, insurance groups, sub-networks and market concentration (non-life sector)

	Operators	Herfindahl-Hirschman Index
Individual companies	187	572
Holdings	67	890
Holdings sub-networks	14	3372

The table shows that when ownership is taken into account, the Herfindahl-Hirschman Index doubles. However, the market is still considered competitive. The US Department of Justice and the Federal Trade Commission Guidelines, for example, indicate that values of the index below 1500 are associated with a competitive market; values between 1500 and 2500 are those observed in moderately concentrated markets; if the index is above 2500 points, the market is considered highly

concentrated.¹¹

By contrast, once sub-networks are considered, the index dramatically increases, and the market can be considered highly concentrated as argued by the Italian Antitrust Authority. According to our view, Antitrust Authority interventions seem to be justified, but their efficacy is questionable—which is, however, beyond the scope of this paper.

4. Concluding remarks

Our paper studied the structure of the Italian insurance market, which can be viewed as special and puzzling within the European Single Market. The Italian insurance companies operate in a quite liberalized market that apparently exhibits a low concentration level, when measured by the commonly used indexes. Nevertheless, the insurance costs for Italian consumers are among the highest in Europe. This occurs because of the existence of diffuse collusive practices. Empirical evidence highlights that the role of anti-competitive behavior is driven by *ad hoc* information exchanges. The same is claimed by the Italian Antitrust Authority, which does not seem able to break these practices—notwithstanding its fines.

We focus on a systemic channel of information exchange based on interlocking directorates, which occur when single individuals sit on more than one company board. As noted, among other studies, by the OECD (2009), these linkages can represent matters of concern for an antitrust authority when the “interlocked” firms are competitors in the same market. The U.S. antitrust regulation forbids the existence of direct interlocks.

Our paper suggested that many holdings may collude through an institutionalized mechanism. Collusive agreements would not be the result of specific formal or informal activities, but they would represent the outcome of a system of interlocking directorates, which supports the information exchange among holdings by their common directors. This form of collusion is not captured by the commonly-used index of market concentration.

As companies are organized in multi-brand holdings, we first distinguish between companies and holdings. Then, we focus on the latter, investigating interlock linkages occurring within and between holdings to disentangle group business strategies from systemic linkages between competitors. We found that many holdings are still organized in sub-networks connected by (direct) interlock linkages—as in the case of companies operating under a common ownership. These

¹¹ Transactions that increase the index by more than 200 points in highly concentrated markets are presumed likely to enhance market power under the Horizontal Merger Guidelines issued by the Department of Justice and the Federal Trade Commission.

connections can clearly represent the potential channel of information exchange—highlighted by the empirical evidence—undermining the foundation of market competition in the insurance industry.

Our results are in line with Antitrust Agency remarks and give a theoretical foundation to some of its interventions. The Antitrust Authority should take into account these linkages in evaluating the companies' behavior. The policy implications of our analysis are that direct interlocking directorates have to be forbidden in the insurance markets as it occurs in the United States, where Section 8 of the Clayton Act bars interlocking board relationships between competitors

Regarding future avenues of research, it could be interesting to investigate a broader set of interlocks such as those arising indirectly from parental relationships. Similarly, indirect interlocking linkages between companies operating in the life- and non-life sector can create potential tacit collusion, through the intermediation of a third party, between two companies operating in the same market. Finally, the relationship between minority shareholding and interlocking directorates could also be explored. We left these issues to future research.

References

- Adams, R., B.E. Hermalin, M.S. Weisbach (2010), “The role of boards of directors in corporate governance: A conceptual framework and survey,” *Journal of Economic Literature*, 48: 58-107.
- AGCM (2008), *La corporate governance di banche e compagnie di assicurazioni*, Indagine conoscitiva, IC36, Autorità Garante della concorrenza e del mercato, Rome.
- AGCM (2010), *Autorità garante della concorrenza e del mercato 2010. Relazione annual sull'attività svolta nel 2009*, Autorità Garante della concorrenza e del mercato, Rome.
- ANIA (2004), *Annuario italiano delle imprese assicuratrici*, Società Editoriale Assicurativa, Milan.
- Berle, A., G. Means (1932), *The modern corporation and private property*, Harcourt Brace & World, New York.
- Born, P.H. (2001), “Insurer profitability in different regulatory and legal environments,” *Journal of Regulatory Economics*, 19: 211-237.
- Carbonai, D., G. Di Bartolomeo (2006), “Interlocking directorates as a thrust substitute: The case of the Italian non-life insurance industry,” Working Paper No. 1, Department of Communication,

University of Teramo.

- Coccoresse, P. (2010), "Information exchange as a means of collusion: The case of the Italian car insurance market," *Journal of Industry, Competition and Trade*, 10: 55-70.
- Cummins, J.D., M.A. Weiss (2000), "Analyzing firm performance in the insurance industry using frontier efficiency and productivity methods," in G. Dionne, *Handbook of insurance*, Kluwer, Boston: 767-829.
- Dooley, P. (1969), "The interlocking directorate," *American Economic Review*, 59: 314-323.
- Drago, C., F. Millo, R. Ricciuti, P. Santella (2011b), "Corporate governance reforms, interlocking directorship networks and company value in Italy (1998-2007)," CESIFO Working Paper No. 3322, CESIFO, Munich.
- Drago, C., S. Manestra, P. Santella (2011a), "Interlocking directorships and cross-shareholding Italian Blue Chips," *European Business Organization Law Review*, 12: 619-652.
- Europe Economics (2009), "Retail Insurance Market Study," MARKET/2008/18/H Final Report, Europe Economics, London.
- Fahlenbrach, R., A. Low, R.M. Stulz (2010), "The dark side of outside directors: Do they quit when they are most needed?," NBER Working Papers No. 15917, NBER, Cambridge (MA).
- Falce, V. (2013), "Interlocking directorates: An Italian antitrust dilemma," forthcoming in *Journal of Competition, Law & Economics*.
- Hallock, K. (1997), "Reciprocally interlocking boards of directors and executive compensation," *Journal of Financial and Quantitative Analysis*, 32: 331-344.
- Haunschild, P.R., C. M., Beckman (1998) "When do interlocks matter? Alternate sources of information and interlock influence," *Administrative Science Quarterly*, 43: 815-844.
- Jacobs, M.E. (2014), "Combating anticompetitive interlocks: Section 8 of the Clayton Act as a template for small and emerging economies," *Fordham International Law Journal*, 37: 643-686.
- Jensen, M., W.H. Meckling (1976), "Theory of the firm: managerial behaviour, agency costs and ownership structure," *Journal of Financial Economics*, 3: 305-360.
- Kramarz, F., D. Thesmar (2013), "Networks in the boardroom," *Journal of the European Economic Association*

Association, 11: 780-807.

- Larcker, D.F., S.A. Richardson, A. Seary, I. Tuna (2005), "Director networks, executive compensation, and organizational performance," Stanford University, mimeo.
- Mintz, B., M. Schwartz (1985), *The power structure of American Business*, University of Chicago Press, Chicago.
- Mizruchi, M. (1996), "What do interlocks do? An analysis, critique, and assessment of research on interlocking directorates," *Annual Review of Sociology*, 22: 271–298.
- Motta, M., P. Courty, N. Fabra, C. Fumagalli (2006), "Identical price categories in oligopolistic markets. Innocent behaviour or collusive practice?," *Temi e Problemi* vol. 11, Autorità Garante della Concorrenza e del Mercato, Rome.
- OECD (2009), "Antitrust issues involving minority shareholding and interlocking directorates," *Series Roundtables on Competition Policy*, DAF/COMP(2008)30 , OECD, Paris.
- Porrini, D. (2004), "Information exchange as collusive behaviour: Evidence from an Antitrust intervention in the Italian insurance market," *The Geneva Papers on Risk and Insurance*, 29: 219-233.
- Richardson, R.J. (1987), "Directorship interlocks and corporate profitability," *Administrative Science Quarterly*, 32: 367-386.
- Smith, A. (1776), *An inquiry into the nature and causes of the wealth of nations*, (edited by E. Cannan), Methuen and Co, London, 1904.
- Turchetti, G., C. Daraio (2004), "How deregulation shapes market structure and industry efficiency: The case of the Italian motor insurance industry," *The Geneva Papers on Risk and Insurance*, 29: 202-218
- Waller, S.W. (2011), "Corporate governance and competition policy," *George Mason Law Review*, 18: 833-858.