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In the shadow of the interlocking directorates regulation.  
A comparative case study

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**Abstract** - Network analysis techniques are used for investigating the probable effects of a change in the regulation that aims to prevent the anticompetitive effects of the crossed presence of the same administrators in the boards of directors of competing firms, known as interlocking directorates (ID). The case study considered is a recent Italian law (Section 36 of Law Decree n. 201/2011) which prohibits ID on the boards of credit, insurance and financial companies. The ID networks of the top-100 Italian listed companies and of the financial companies in this same list are considered and compared with the analogous networks in the U.S.. The U.S. networks represent a benchmark given that in the U.S. companies act in the shadow of the Section 8 of the Clayton Act that has banned ID since 1914. The effects on the ID networks of the new Italian law are simulated under two different interpretations of the law. If the law will be applied according to a narrow interpretation, Italian ID network will rest substantially unaltered. On the other hand if the law will be applied according to a broad interpretation, the ID network for financial firms will be completely modified with a network configuration very similar to the American benchmark.

**Jel Codes:** K2 Regulation and business law; L41 Monopolization; Horizontal anticompetitive practices; G2 Financial institutions and services; G34 Corporate governance

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## 1. Introduction

An interlocking directorates (ID) occurs when a person sitting on the board of directors of a firm also sits on the board of another firm. According to Louis Brandeis (1933) “the practice of interlocking directorates is the root of many evils. It offends laws human and divine. Applied to rival corporations, it tends to the suppression of competition”. Others suggest that ID can be explained as the result of a strategic decision of firms, in view for example of monitoring sources of environmental uncertainty, and that the lack of direct evidence of real anticompetitive effects makes it difficult to elaborate a regulation (ABA, 1984; Schoorman et al., 1981). Indeed, the main trait of ID is ambiguity (Gerber, 2007). From a competition policy perspective, competing firms have to take their business decisions independently to avoid collusion and anticompetitive behaviour; ID may reduce or eliminate competition and facilitate collusion through the exchange of information (Gonzalez Diaz, 2012). Moreover, a same director sitting on the boards of competing firms may have an incentive to lessen competitive pressure amongst them (OFT, 2010; OECD, 2008). In contrast from a company perspective, ID can generate efficiencies, in terms of improving business decisions and, in some circumstances, consumer and social welfare (OFT, 2010; Mizruchi, 1996). In particular, vertical interlocks can facilitate tying arrangements, vertical integration, and reciprocal or exclusive dealing (OECD, 2008). As a consequence, vertical ID are considered benign for consumers, except in cases where rivals can be foreclosed, and therefore competition intervention scrutinizes horizontal collusive ID only (Gabrielsen et al. 2011).

Probably, this ambiguity is a plausible explanation for the different approaches to regulation adopted by the United States and the European Union. In the US, Section 8 of the Clayton Act bans horizontal ID, whereas European antitrust legislation does not address the issue of ID as an independent problem (Gabrielsen et al., 2011). Namely, European jurisdiction may use general competition law to challenge interlocks that harm competition, but Articles 101 and 102 of the Treaty of the European Union, and European Merger Regulation n. 139/2004 are considered inappropriate devices to this end (Ezrachi, Gilo, 2006).

This paper approaches ID by focusing on the network of firms that have been generated by the co-presence of the same directors on the boards of different companies. Our aim is to investigate the effects of a change in the ID regulation on the network structure. A recent Italian law is the case-study considered. Italian legislator aiming to reduce pervasive links among financial firms (AGCM, 2008) integrated competition law with Section 36 of Law Decree n. 201/2011 (ratified by amendments by Law 214/2011). This intervention, clearly inspired by the American law, prohibits the crossed presence of the same directors on the boards of credit, insurance and financial companies. So the ID network of the top-100 Italian listed companies is considered and compared with the network of the top-100 listed companies in the US. The reason of this choice is straightforward. ID has been an important trait of Italian capitalism for a long time (Rinaldi, Vasta, 2005) and it has survived also recent improvements in corporate governance law (Enriques, Volpin, 2007;

CONSOB, 2012). The family control of listed companies that are often part of larger business groups (Bianchi, Bianco, 2006) is only a partial rationale for ID network persistence over time in Italy. On the other hand, if we consider that ID has been banned in the U.S. since 1914, the diffusion of ID among firms has probably been curbed in this system. As a matter of fact, U.S. is considered as the country with the minor relevance of ID in capitalist economies (Schifeling, Mizruchi, 2012; Chu, 2012). We can therefore consider the structure of U.S. network as a benchmark for the assessment of the actual Italian ID network and of the effects on the ID network of the application of the new law.

The paper is organized as follows. In the next section, Section 8 of the Clayton Act and the recent Italian legislation are illustrated, followed by a brief comparison of the structure of the network of the top 100 U.S. and Italian firms. The third part is focused on the subset of the biggest financial firms in the U.S. and Italy. The fourth section contains a simulation of the impact of the recent Italian law on the network of financial firms, and a comparison with the U.S. benchmark. The fifth part concludes.

## 2. An overview of the regulations

Concerns regarding monopoly and big companies were widespread at the beginning of the twentieth of century in the U.S. and as a consequence ID became a hot political issue. In 1908 the Democratic Party platform proposed a law to prohibit it, and in 1912 the platforms of all three national parties called for ID legislation to supplement the Sherman Act. In the build-up of the legislation, two committees investigated and documented the extent of interlocking directorates<sup>1</sup>. Brandeis, an influential advisor to President Woodrow Wilson, published articles highly critical of the practice (1915). The issues raised by these committees and commentators were broader: they concerned collusion, information exchange and conflicts of interest. Policy proposals were directed toward the prohibition of almost any kind of interlock (Travers, 1968).

Congress approached the problem of ID selectively, limiting both the classes of corporations and the kinds of ID subject to regulation (ABA, 1984); and in fact Section 8 of the Clayton Act, enacted in 1914 and still effective today, prohibits ID for competing corporations larger than a certain size (Waller, 2011). Congress also decided to leave the regulation of conflict of interest of the boards of directors and other concerns to state fiduciary duty laws, the securities laws of the 1930s, and to other legislation.

Revisions to Section 8 followed quickly upon the statute's 1914 passage, but the most significant changes took place in the last quarter of the XXth century. In 1978 Congress enacted the Depository Institution Management Interlocks Act (1978) to discipline bank interlocks and expanded the role of agencies to grant exemption<sup>2</sup>. The exclusion of banks represented a significant break in the history of Section 8: substantial

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1 For the Stanley Committee see H.R. Rep. No. 62-1127 (1912). Whereas for the Pujo committee see H.R. Rep. No. 62-1593 (1913).

2 A number of statutory provisions prohibit or regulate interlocking directorates in specific industries (Miller, 1997). For instance, interlocks between public utility holding companies or their subsidiaries are covered by the Public

portions of earlier versions of Section 8 had dealt with banking interlocks, and many of the early amendments to the Section focused exclusively on modifying the banking provisions of the act. In 1990 a modification excluded relatively small companies from coverage under the law<sup>3</sup>. Current wording of this rule prohibits any person from serving as a director and officer “in any two corporations (...) that are (...) by virtue of their business and location of operation, competitors, so that the elimination of competition by agreement between them would constitute a violation of any of the antitrust laws” (United States Code, 2013).

From an enforcement standpoint, it is interesting to note that Section 8 is not a criminal statute and persons who serve on interlocking boards, and their corporations, are not subject to criminal penalties. The most common remedy is for either the Department of Justice (DOJ), the Federal Trade Commission (FTC), and private parties, including state attorneys general, to bring an enforcement action to eliminate the unlawful interlock. Namely, the Clayton Act sets up “a scheme of dual enforcement” (ABA, 2011), whereby the FTC is granted the power to issue cease and desist orders barring violations of the prohibition on interlocking boards, while private parties and DOJ must seek relief in Courts. Moreover, compliance with Section 8 is enforced by the same corporate counsellors, because the ID problem is self-evident (Garon, 2009). As a result, directors and companies tend to act accordingly to Section 8 and there is not much litigation (Waller, 2011; Rosch, 2009). According to Wilson (1976): “the Department of Justice and Federal Trade Commission, in their enforcement of Section 8 of the Clayton Act, have pursued a policy on director interlocks which has been punctuated by a few bursts of mild activity and then followed by long periods of benign neglect”. This sleepy enforcement effort has been so peculiar that it has also been noted by courts: the Supreme Court rejected a proffered interpretation of the law exactly maintaining that the government had not attempted to enforce that interpretation for over 60 years (ABA, 1984).

In contrast, the European competition law does not follow the *per se* approach of the Clayton Act on ID amongst competitors (Rosch, 2009). This regulatory gap, however, did not discourage Antitrust Authorities to assess and pursue personal links that harm competition through three alternative regulatory instruments: cartel prohibition<sup>4</sup>, the abuse of a dominant position<sup>5</sup>, and merger control<sup>6</sup>.

As anticipated, these legal provisions can be used to monitor and remove dangerous links (Ezrachi, Gilo,

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Utility Holding Company Act of 1935; interlocks between telephone companies and other regulated communication carriers are covered by the Communication Act of 1934; interlocks amongst registered investment companies and underwriters, and between investment companies and banks, are covered by the Investment Company Act of 1940.

3 The Act applies if each of the corporations has capital, surplus, and undivided profits of more than \$ 10,000,000, (adjusted for inflation to \$ 28,883,000). Three exemptions are provided for interlocks viewed as having a minimal effect on competition: a) the competitive sales of either corporation are less than \$ 1,000,000 (adjusted for inflation to \$ 2,686,000); b) the competitive sales of either corporation are less than 2 percent of that corporation's total sales; c) the competitive sales of each corporation are less than 4 percent of that corporation's total sales. See Revised Jurisdictional Thresholds for Section 8 of the Clayton Act, 78 Fed. Reg. No. 9, 2675.

4 Article 101, Treaty on the Functioning of the European Union.

5 Article 102, Treaty on the Functioning of the European Union.

6 Council Regulation No. 139/2004 of 20 January 2004, on the Control of Concentrations between Undertakings, (the EC Merger Regulation) OJ L24/1, (2004).

2006): in some cases Antitrust Authorities used traditional antitrust tools by imposing structural (severance of ID) or behavioural remedies (“Chinese walls”) to reactivate competition (Moavero Milanesi & Winterstein, 2002; Giannino, 2009). On the other hand, the existing regulation appears able to comprehensively cover illicit personal links (Ezrachi & Gilo, 2006).

The problem regards, in particular, the possibility to use antitrust procedures for collusive behaviours for which there is not an evident proof of a cartel. Personal links amongst competitors can be considered prerequisites for the realization of a stable cooperative mechanism, because they permit both the reaching a consensus regarding given actions and also the reduction of the time that is necessary for unmasking deviation and for effectuating punishment (Buccirossi & Spagnolo, 2007; Motta, 2004). However, it may not be easy to establish the presence of an agreement or just a concerted practice among competing firms, which Article 101 TFUE forbids; in many cases, there are only separate arrangements between the director and the respective companies that are not pursuable with competition law (OECD, 2008). Moreover, the abuse of a dominant position, apart from several controversial points for identifying requirements (Wish, 2009), does not appear an incisive legal instrument for eliminating anticompetitive ID, as the sharing of sensible information by directors can be carried out by a firm without relevant market power (Ghezzi, 2011). Furthermore, in Europe antitrust enforcers are limited to deal with ID in merger control regulation where ID is considered a factor facilitating co-ordination among interlocked firms. In most instances the preferred remedy is the elimination of the structural link and the end of the interlock; in other cases authorities required members of management and supervisory boards to abstain from discussing and voting certain proposals in view of reducing dangerous connections<sup>7</sup> (OECD, 2008).

As is well known, the Italian competition rules are modelled on European policy (Wish, 2009). Italian lawmakers, evidently considering unsatisfactory this legal framework, have recently introduced a new proscription similar to the American regulation of ID and having as its object ID in the financial sector. More specifically, Section 36 of so called “Rescue-Italy Law Decree” (Law Decree 6/2011, ratified by amendments by Law 214/2011 in force as from 28 December 2011) to improve competition in the financial system has provided a new incompatibility regime for corporate governance bodies of certain companies. The first part of the rule foresees that no member of management boards, supervisory boards and statutory board of auditors, as well no executive officer, of companies or corporate groups which are active on banking, insurance and financial markets shall serve, at the same time, in “corresponding” positions in competing companies or corporate groups. Section 36 (2) clarifies that “competing companies or corporate groups” are companies or corporate groups which are active on the same product markets. Paragraph 2-bis of Section 36 contains the possibility for a director being in an incompatibility situation to opt for one of the offices; this choice must be exercised within 90 days from the appointment, though for the first application of

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<sup>7</sup> There is a general scepticism on the efficacy of “Chinese Wall” as remedy to risks of co-ordination from interlocking directorates, because is difficult to monitor parties' compliance and to impede the sharing of sensitive data among persons setting in the same corporate board. See European Commission, Blokker Toys “R” US, case IV/M.980, in OJ L316, 25.11.1998; European Commission, Hoechst/Rhone Poulenc, case M.1378, in OJ C42, 18.02.2004.

the Decree such time-limit is extended to 120. Wherever the option is not exercised, the person concerned must be dismissed from any of such offices; termination must be declared by the competent corporate bodies within 30 days from the expiration of the above time-limit or from the date that the infringement was acknowledged. In case of failure to act by the competent corporate body, the termination must be declared by Surveillance Authority of the market concerned (Ghezzi, 2012; Drago, 2012).

The law contains some ambiguities creating a harsh interpretative debate among authorities, associations and law firms (Banca d'Italia et al., 2012; Assonime, 2012; Assosim, 2012). In particular, questions are raised concerning how to determine whether two corporations are, in fact, “competitors” and which markets are covered by the ID ban. Interpretative problems on the kind of offices involved are pointed out, and other critical points are raised regarding how pro-competitive goal can be balanced with a fair rule. This debate is relevant for our exercise as the reader will see onward.

### 3. The interlocking directorship networks: Italy vs. U.S.

As a first step in our empirical analysis we need a context where it is possible to discuss about the impact of the different regulations of ID. The boards of directors of the top 100 companies for capitalization in the U.S. and Italy will be then considered and compared. The databases [available on request from the authors] was constructed from the S&P Capital IQ [<https://www.capitaliq.com/home.aspx>] for the US, and from the Italian Stock Exchange for Italy. Italian data refer to the composition of the boards up until the 31<sup>st</sup> of December 2010 [except for *Fiat Industrial* dated 1<sup>st</sup> January 2011, when the division from *Fiat s.p.a* became effective], U.S. data refer to the composition of the boards in 2011<sup>8</sup>.

For Italy, all effective members of corporate bodies (board of directors, surveillance committees, control committees) are considered. In both cases, the distinction between executive/non executive or independent directors is not considered because neither Section 8 of Section 36 of Law 214/2011 or the Clayton Act provide immunity for them. The database was analyzed by the package *Pajek* (Batagelj, Mrvar, 2006; de Nooy, 2005).

*Figure 1. The interlocking directorship network of the top 100 companies in Italy (2010)*

*About here*

**Legenda.** Blue: real estate; Red: financial; Green: insurance; Yellow: banks.

*Figure 2. The interlocking directorship network of the top 100 companies in U.S. (2011)*

**Legenda.** Yellow: financial and banks.

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<sup>8</sup> Data was collected between the 1<sup>st</sup> May 2011 and the 1<sup>st</sup> June 2011.

Some empirical evidence is already known. On the one hand, the Italian model is made of a high number of companies linked to each other through directors serving on several company boards at the same time (Drago et al., 2011); on the other hand, the U.S. network model shows a high number of companies connected to each other, but such connections are made through directors who tend to have just two board positions at the same time. This is a sign that the U.S. network might not be functional to systemic collusion (Chu, 2012; Drago et al., 2009; Bearden, Mintz, 1985). Our results, as drawn in Figure 1 and Figure 2, corroborate this traditional wisdom. All the summary data contained in Table 1 underline that Italian ID network is more connected and centralized than the U.S. one. In particular the density (i.e. the ratio of the actual number of lines to the maximum possible number of lines) of the Italian network almost doubles the U.S. density. The average degree and the median degree in Italy also nearly double that of the U.S.. The Italian network is also more centralized in terms of degree and closeness centralization.

*Table 1. The interlocking directorship networks of the top 100 companies. Italy (2010) and U.S. (2011)*  
*about here*

In Table 2 the frequency distributions of Italian and U.S. firms according to their degree values are compared. Italian firms show a cumulative distribution skewed toward higher degree values; that is in Italy the top-100 companies have a higher degree than in the U.S.. Table A1 and A2 of the appendix testify that Italian companies tend to have higher values of centralities than U.S. firms.

*Table 2. Frequency distributions of firms according to their degree. Italy (2010) and U.S. (2011)*  
*about here*

It is not easy to explain the different configurations of the two ID networks. From our limited point of view we can suggest, first of all, that in the U.S. companies probably act in the shadow of Section 8 of the Clayton Act. The simple existence of a *per se* rule may deter companies from using ID as an instrument for collusive strategies. On the other hand the historical lack of regulation of ID in Italy tends to allow the use of ID as an instrument for the reduction of competitive pressure amongst companies. But this is not sufficient because in Italy not all ID are generated by anticompetitive behavior. Many links are created by companies that belong to a same business group; they are in fact expression of *de iure* or *de facto* control relationships, and therefore without relevance for competition. In fact, as noted above, Section 36 is not adopted for firms linked by these control mechanisms. This is not the case for the 100 U.S. firms and for the American legal framework, where Section 8 does not cover ID among related companies.

The information available to the authors cannot provide a complete reconstruction of the control relationships amongst all of the firms considered. A two steps strategy is therefore adopted. In the first one, groups of firms are individuated by using network analysis techniques. In the second step information about

ownership structure (such as pyramids, majority of voting capital, shareholder agreements, identity of owners) of the Italian companies is given. In the first step the working hypothesis is that the strength of the relationship between two firms is approximated by the number of common directors sitting on their boards (for a similar strategy Baccini, Barabesi, 2010). The idea behind all this is that the observation of the level of overlapping among boards makes it possible to infer the level of proximity of companies. At one extreme there is the case of two firms with two boards composed by the same directors; they can coordinate perfectly their decision without information asymmetries. At the other extreme there are two firms without common directors: that is without coordination and without common information. So if we consider the number of common directors –technically the value of the link- as a measure of the strength of the link between two firms, it is possible to search for cohesive subgroups of firms in the network. A cohesive subgroup is a subset of companies among which there are relatively strong ties (Wasserman, Faust 1994). More technically, in a valued network a cohesive subgroup is a subset of vertices among which ties have a value higher than a given threshold. In our case, a cohesive subgroup of companies is a set of companies sharing a number of directors equal to or higher than the threshold.

The application of this technique to the U.S. network did not permit the individuation of cohesive subgroups. In fact in the U.S. network, 155 lines out of 167 have value 1, being generated by only one common director; the other 12 lines have value 2. As a result no cohesive subgroups emerge in the U.S. ID network.

For Italy data are completely different. Table 3 shows the distribution of line values. Lines with a value equal or greater than 2 are 56 out of a total of 313; 49 firms out of 100 are connected by relative strong relationships.

*Table 3. Line values in Italian top-100 companies network*

*about here*

The search for cohesive subgroups results in 9 subgroups, as illustrated in Figure 3. Five subgroups are composed by pairs of companies (*Marcolin-Tod's, Banco Popolare-Credito Bergamasco, IGD-Unipol, Fondiaria Sai-Milano Assicurazioni, Banca Popolare Emilia Romagna-Marr*; the latter two are between financial companies). A sixth subgroup is formed by 3 companies (*Edison-Credito Valtellinese- A2A*) where a bank is linked with two companies operating in the energy industry. The seventh group is formed by 4 companies, three of which (*Mondadori Editore-Mediolanum-Mediaset*) are owned by a same family (Berlusconi) and the fourth is ENI, the largest Italian multinational oil and gas company.

*Figure 3. Cohesive subgroups in the Italian network (weak components in 2-slices)*

*About here*

The eighth subgroup contains 5 companies (*Piaggio & Co.- Gruppo Ed. L'Espresso-Cir-Cofide-Sogefi*).

*Cir* is the center of the group, having links with all other companies and serving as broker amongst *Piaggio & Co.*- *Sogefi-Cofide*. The last is the holding of the De Benedetti family.

The ninth and last cohesive subgroup of Figure 3 includes 27 companies. At the centre there is *Mediobanca* having links with 7 companies (*RCS Mediagroup*, *Italmobiliare*, *Pirelli & Co.*, *Benetton Group*, *Unicredit*, *Generali*, *Telecom*), whereof two that are active in financial industry (*Generali*, *Unicredit*). On the upper right *Telecom* is the bridge toward *Intesa San Paolo*; at the top *Generali* is the bridge toward *Banca Generali*; on the upper left *Unicredit* is the bridge toward *Credito Emiliano*; on the lower right *RCS Mediagroup* and *Italmobiliare* are the bridge to *UBI Banca*. Inside this subgroup we can identify companies among which there are lines with high value: *Autostrada TO-MI-Sias* with 7 common directors; *Autogrill-Benetton Group* with 5 shared councillors; *Lottomatica-Dea Capital*, *Italcementi-Italmobiliare*, *Rcs Mediagroup-Telecom* and *Exor-Fiat* with 4 common directors.

When exploring these relationships, in terms of relevance for Section 36, it is interesting to note a combination of familial and ownership links. Indeed, from an ownership point of view many links regard listed companies controlled by another listed company (pyramidal groups), shareholder coalitions (voting or meeting agreement), and declared control mechanisms realized with less to 50% of capital (*de facto* control)<sup>9</sup>.

In particular, *Milano Assicurazioni* is subject to the control of *Fondiaria Sai* (with 60,579% of voting capital) in turn controlled by *Premafin*, the holding company of *Unipol Group*; *Credito Bergamasco* belongs to *Banco Popolare Group* what has 77,428% of voting capital in the first one. Della Valle family, owner of *Tod's*, wields *de facto* joined control on *Marcolin*<sup>10</sup> taking part of a formal pact on voting capital<sup>11</sup>. As previously noted, the Berlusconi family means the holding company *Fininvest Spa*, rules *Mondadori Ed.*, *Mediaset* and *Mediolanum*, detaining respectively the 38,618% of voting capital on the first one, the 50,408% of voting capital on the second one, and the 35,886% of voting capital on the third<sup>12</sup>. The De Benedetti family, via the holding company *Cofide*<sup>13</sup> exerts a control power on *Cir*<sup>14</sup>, another holding company of an Italian industrial group active in five business areas (energy, media, automotive components, healthcare, non-core investments) whereof *Sogefi* is the firm operative in automotive components sector, as 56,46% of voting capital is in fee of *Cir*, and *Gruppo Editoriale L'Espresso*, the group active in media industry, because 54,956% of voting capital belongs to *Cir*. On the subgroup composed by 27 companies we can notice that: *Sias* and *Autostrade TO-MI* are subject to the direction and coordination activity of *Argo*

9 It is interesting to note that with respect to control enhancing mechanisms used by Italian listed companies pyramids, cross-ownership and shareholder alliances tend to be the most widespread. See CONSOB, (2012), *Rapporto 2012 sulla corporate governance delle società quotate*, available at: [www.consob.it](http://www.consob.it).

10 Andrea e Diego Della Valle hold jointly the 30,100% of voting capital.

11 Partners of the coalition are: Giovanni Marcolin Coffen (10,423% voting capital), Maria Giovanna Zandegiacomo (1,409% voting capital), Cirillo Coffen Marcolin (2,234% voting capital), Maurizio Coffen Marcolin (2,234% voting capital), Monica Coffen (3,800% voting capital), Inmar s.r.l. (20,100% voting capital), ADV Partecipazioni s.r.l. (15,050% voting capital), DDV Partecipazioni s.r.l. (15,050% voting capital).

12 In *Mediolanum Group* there is a joint stake amongst Fininvest spa and Doris Group.

13 Controlled by Carlo De Benedetti for the 52,033% of voting capital: whereof 34,343% by Carlo De Benedetti & Figli S.a.p.a. - 17,241% by Bim Fiduciaria S.p.a.- 0,449% by Romed S.p.a.

14 Carlo De Benedetti has, via Cofide s.p.a., 45,92% of voting capital.

*Finanziaria*, as it has in the second one 50,579% of voting capital and *Autostrade TO-MI* holds 61,705% of *Sias*'s voting capital. The Benetton family, through *Edizione s.r.l.* and *Schematrentaquattro s.r.l.*, controls *Autogrill*, with 58,28% voting capital, *Benetton Group*, detaining 67,08% of voting capital and *Atlantia*, having 43,208% of voting capital<sup>15</sup>. *Italcementi* and *Italmobiliare* are controlled both by the Pesenti family, via *Epifarind B.V.* which keeps 47,26% (the majority of voting capital) in *Italmobiliare* which, in turn, controls *Italcementi* with 60,26% of voting capital. The Agnelli family controls *Exor*, *Fiat* and *Fiat Industrial*: these listed firms are subject to the control of *Giovanni Agnelli & Co. S.a.p.az.* which manages respectively in *Exor* the 52,66% of voting capital, in *Fiat* (via *Exor*) the 30,419% of voting capital, and in *Fiat Industrial* (via *Exor*) the 30,417% of voting capital. *Assicurazioni Generali s.p.a.* is the holding company which exerts direction activity on *Banca Generali*, as the insurance firm holds the 65,453% of voting capital of the bank. Finally, the Drago and Boroli families, through *De Agostini s.p.a.*<sup>16</sup>, control *Dea Capital* with 58,3% of voting capital and *Lottomatica* with 60,782% of voting capital.

From this summary description it is possible to infer that in Italy the existence of cohesive subgroups is the result of the familial capitalism and ownership concentration, traditional traits of Italian listed companies (CONSOB, 2012; Faccio & Lang, 2002). Moreover, we can gather that the lack of regulation did not deter the formation of ID, particularly in the banking industry.

As for financial sector, the subset of financial companies included in the top-100 firms in Italy (28 firms) and the U.S. (18) is considered, each one with its ID network. In the U.S. network 11 companies out of 18 (61%) are isolated (*Simon Property Group Inc.*, *The Bank of New York Mellon Corporation*, *MetLife Inc.*, *Citigroup Inc.*, *Mastercard Incorporated*, *Bank of America Corporation*, *The Goldman Sachs Group Inc.*, *U.S. Bancorp.*, *Wells Fargo & Company*, *American Express Company*, *Morgan Stanley*). There are two pairs of firms sharing only one director (*American International Group Inc.* with *Visa Inc.*; *BlackRock Inc.* with *PNC Financial Services Group Inc.*); and a triad where *JPMorgan Chase & Co.* shares one director with *Berkshire Hathaway Inc.* and one with *Prudential Financial Inc.*.

In contrast, Figure 4 points out that in Italy only 4 out of 28 financial companies are isolated (14%: *Banca Carige*, *Banco di Desio e Brianza*, *Azimut Holding*, *Banca Popolare di Sondrio*).

*Figure 4. Network of the subset of financial companies included in the top-100 firms in Italy*

*About here*

Figure 4 shows that *Mediobanca* is the centre of the Italian financial network, with 6 links toward banks (*Unicredit* and *Credito Artigiano*) or insurance companies (*Generali*, *Fondiaria-Sai*, *Milano Assicurazioni*,

15 Via Schemaventotto s.p.a. (34,243% of voting capital), and Sintonia S.A. (8,965% of voting capital).

16 Controlled in turn by B&D holding of Marco Drago & Co. s.a.p.a.

*Mediolanum*), these latter acting as bridges with other banks. In particular *Fondiaria Sai* is the bridge toward *Banco Popolare* and *Intesa San Paolo*; *Generali* is linked to *Banca Mps*, *Exor*, *Beni Stabili*, *Dea Capital*, *Banca Generali*, and *Ubi Banca*; *Mediolanum* is the bridge toward *Banca Popolare di Milano* and *Banca Intermobiliare*. We can observe that *Generali* has 7 connections (*Banca Mps*, *Exor*, *Beni Stabili*, *Dea Capital*, *Banca Generali*, *Ubi Banca*, *Mediobanca*), not one of which with insurance players. These links may be able to generate indirect information channels with competitors. The indirect form of ID is the weakest and less discernible and occurs when two rivals with no directors in common are linked through a non-competitor company (or companies) with whom they share directors (Schoorman et al., 1981). In this perspective, 3 links of *Generali* could constitute a bridge to insurance companies: in the centre of Figure 4, *Mediobanca* could act as bridge with *Mediolanum*, *Milano Assicurazioni* and *Fondiaria Sai*; on the upper right *UBI Banca* could serve as an intermediary with *Cattolica Assicurazioni*. These evidence reinforce other empirical surveys (Drago et. al., 2011; AGCM, 2008) documenting that the overwhelming majority of Italian financial operators were linked by ID in a stable and pervasive way.

#### 4. Two scenarios on how to tackle the Italian financial network through Section 36 of Law Decree 6/2011

The recent Italian legislation (Section 36 of Law Decree 6/2011) aims to modify this situation. The impact of this new regulation on the ID network of financial companies depends on the interpretation of the law, and, as we anticipated, two interpretations are plausible. According to the first broad interpretation of Section 36, the aim of the law was to prohibit personal links inside the financial sector on the whole. So all financial companies must be considered as competitors and then subjected to the law because they offer the same goods and services (banking services, insurance and saving products) to customers (AGCM, 2008). Instead, a second narrow interpretation of Section 36 considers the reference market of a firm that which has the biggest share of revenues, according to the method elaborated by the Italian Stock Exchange. For example, a company is qualified as a bank, if the biggest part of its revenue is generated in the banking sector. As a consequence, two firms are competitors only if they have a predominance of revenues in a same market. This interpretation is inspired by the American regulation system of ID which expressly prohibits interlocks among firms competing in a same markets.

If the first broad interpretation is adopted, then 26 out of 28 financial companies can be considered as subjected to Section 36. The only exceptions are two real estate investment companies (*Beni Stabili* and *Igd*) which, according to the Authorities (Banca d'Italia et al., 2012) do not operate properly in financial market, as they offer ancillary services. If the second narrow interpretation is adopted, it is not possible to define *ex ante* the number of firms to which the regulation must be applied, because it depends on the revenues share obtained by the companies for each sector. However, following the method used by Italian Stock Exchange, it is possible to classify 15 companies as banks, 6 as insurance, 5 as belonging to financial services sector and 2 as real estate investment. Section 36 acts inside each of the small groups of rival companies, with the

only exception of the two companies that are classified as real estate because they are let off by the application of Section 36 (Banca d'Italia et al., 2012).

The effects of the application of the Section 36 on the network of financial firms are simulated by removing the links that can be considered unlawful under the broad and the narrow interpretations of the Section 36. In both cases, ID are considered legitimate when they link financial companies belonging to a same industrial group or when there is a control relationship (*de jure* or *de facto*) among them. Figure 5 shows that under the broad interpretation the impact on the financial ID network should be dramatic, allowing a situation similar to the one that we have seen for the US. In Figure 5 all links among competitors are eliminated, while links among firms belonging to a same group and with real estate listed companies are left unchanged. The number of isolated firms in financial sector increases from 4 to 17 out of 28. The big component centered around *Mediobanca* is completely fragmented. Only five small groups survive. *Generali* preserves connections with *Banca Generali* and *Beni Stabili*; *IGD*, a real estate firm, is linked with *Unipol*; *Banco Popolare* remains connected with *Credito Bergamasco*, as the former has the 77,428% of voting capital in the latter. *Credito Artigiano* controls, with 69,88% of voting capital, *Credito Valtellinese*, therefore this connection is kept. The link between *Fondiaria Sai* and *Milano Assicurazioni* survives, because they are controlled by the same holding company (*Premafin*). This effect may be lessened when the top-100 ID network is considered because of the persistence of indirect links, in which two representatives of different financial corporations sit on the board of a third non financial firm and thus can have face-to-face interaction on a regular basis (Vance, 1968).

*Figure 5. The network of Italian financial companies when the Section 36 is applied (broad interpretation)*

*About here*

If the narrow interpretation of the Section 36 is adopted, the impact of the law is much more limited, as drawn in Figure 6. The number of isolated companies rises from 4 of the actual network to only 6 (*Banca Popolare di Sondrio*, *Azimut Holding*, *Banca Carige*, *Banco di Desio e Brianza*, *Credito Emiliano*, *Unicredit*). Contrary to the previous interpretation, in this case *Mediobanca* is left in a strategic position to influence the competitors, as the investment bank keeps channels to share information with others through insurance firms which have a “broker position” in the network. In particular, it is possible to distinguish the following connections: *Mediobanca-Fondiaria Sai-Intesa San Paolo*, *Mediobanca-Milano Assicurazioni-Banco Popolare*, *Mediobanca-Mediolanum-Banca Popolare di Milano*, *Mediobanca-Generali-Ubi Banca*, *Mediobanca-Generali-Banca Mps*. Therefore according to the narrow interpretation, the prohibition removes only two connections relevant in terms of competition: *Mediobanca-Unicredit*, *Mediobanca-Credito Artigiano*. Furthermore, *Generali* has the highest number of ties (6 with *Mediobanca*, *Beni Stabili*, *Dea Capital*, *Ubi Banca*, *Exor*, *Banca Mps*; and control directly *Banca Generali*).

The effects of a narrow interpretation of Section 36 on the network of financial firms are minimal: the revenues criterion leaves not only the network substantially unaltered but also the risks of collusive

behaviour and market cartelization.

**Figure 6.** The network of Italian financial company when the Section 36 is applied (narrow interpretation)

*About here.*

## 5. Concluding remarks

The basic premise of this study was that the existence of ID can be considered a threat for competition. Different regulations of ID affect the behaviour of firms. In the U.S. case, the high number of independent companies, that is companies without common directors in their boards, in the financial sector and in other industries, is the result of firms acting in the shadow of the Section 8 of the Clayton Act: a clear law –the *per se* violation-. This easy observability of breaches prevents the use of ID as a mean to share information. The Italian companies in comparison show a high level of personal relationships probably due to a combination of a lack of legal proscription and of familial/ownership links that mark the Italian corporate governance system. According to previous findings (Drago et al., 2011; AGCM, 2008) this study has shown the anomaly of Italian financial connections in 2010: compared to the American case, the shape of the Italian financial ID network is such that corporations can share information and elaborate common strategies, because they are directly or indirectly connected.

This evidence called for a change in legislation which resulted in the rationale of legislators intervention of Section 36 in 2011. The incompatibility regime stated in the law apparently represented a revolution for corporate governance in the financial sector, as it provided a ban corresponding to the American approach to ID. Nevertheless, the ambiguity of the law fostered two different interpretations: a narrow one and a broad one. The narrow one could leave the ID network substantially unaltered. A broad interpretation of the law instead would completely modify the ID network for financial firms. According to the simulation proposed in this paper the final result will be a network of financial firms structured as in the U.S..

The interpretative debate regarding Section 36 sets pro-market supporters defending a broad interpretation of the law against custodians of the *status-quo*. Our sad opinion is that a single law intervention may simply be useless. The introduction of a law similar to the Clayton act when limited to the financial sector can be easily eluded: the absence of a similar prohibition of ID for non-financial firms could favor the diffusion and the strengthening of indirect links among financial firms actuated through non-financial companies. These indirect links will probably substitute in the medium period the direct ones that continued to characterize Italian capitalism.

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*Table A1 and Table A2.*

*About here.*

Table 1

	ITALY	US
N. of firms	100	100
N. of Seats	1621	1386
N. of Directors	1411	1227
(of which) women	68	200
Average seats per firm	16,21	13,86
Average seats per Director	1,15	1,13
Isolated firms	5	13
Number of links	312	167
Number of links with value #1	256	155
Number of links with value #2	25	12
Number of links with value >2	31	0
Density	0,063	0,034
Average degree	6,24	3,34
Median degree	5	3
Max degree	25	12
Degree standard deviation	5,15	2,64
Degree centralization	0,193	0,097
Closeness centralization	0,287	0,239
Betweenness centralization	0,110	0,160

Table 2

Degree	Italy Number of firms/frequency	Italy Cumulative frequency	US Number of firms/frequency	US Cumulative frequency
0	5	5	13	13
1	8	13	21	34
2	12	25	11	45
3	13	38	10	55
4	8	46	12	67
5	9	55	13	80
6	6	61	7	87
7	6	67	5	92
8	8	75	5	97
9	5	80	1	98
10	3	83	1	99
11	3	86	0	99
12	4	90	1	100
13	2	92		
14	1	93		
17	1	94		
19	4	98		
22	1	99		
25	1	100		

Table 3

Lines value	Frequency	Cumulative frequency
1	257	257
2	25	282
3	17	299
4	9	308
5	2	310
6	0	310
7	2	312
8	1	313

Figure 1. The interlocking directorship network of the top 100 companies in Italy (2010)

**Legenda.** Blue: real estate; Red: financial; Green: insurance; Yellow: banks.

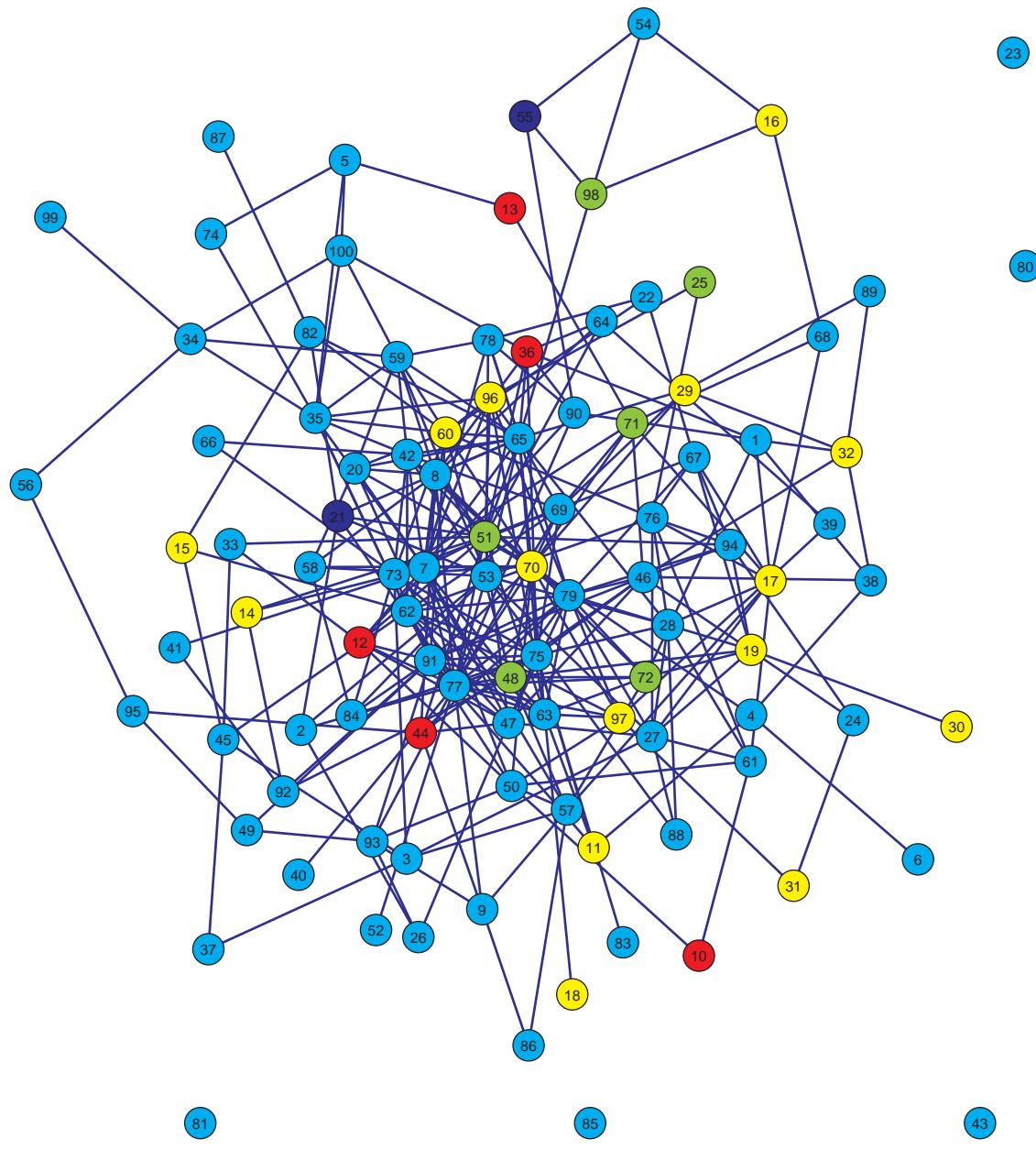


Figure 2. The interlocking directorship network of the top 100 companies in U.S. (2011)

**Legenda.** Yellow: financial and banks.

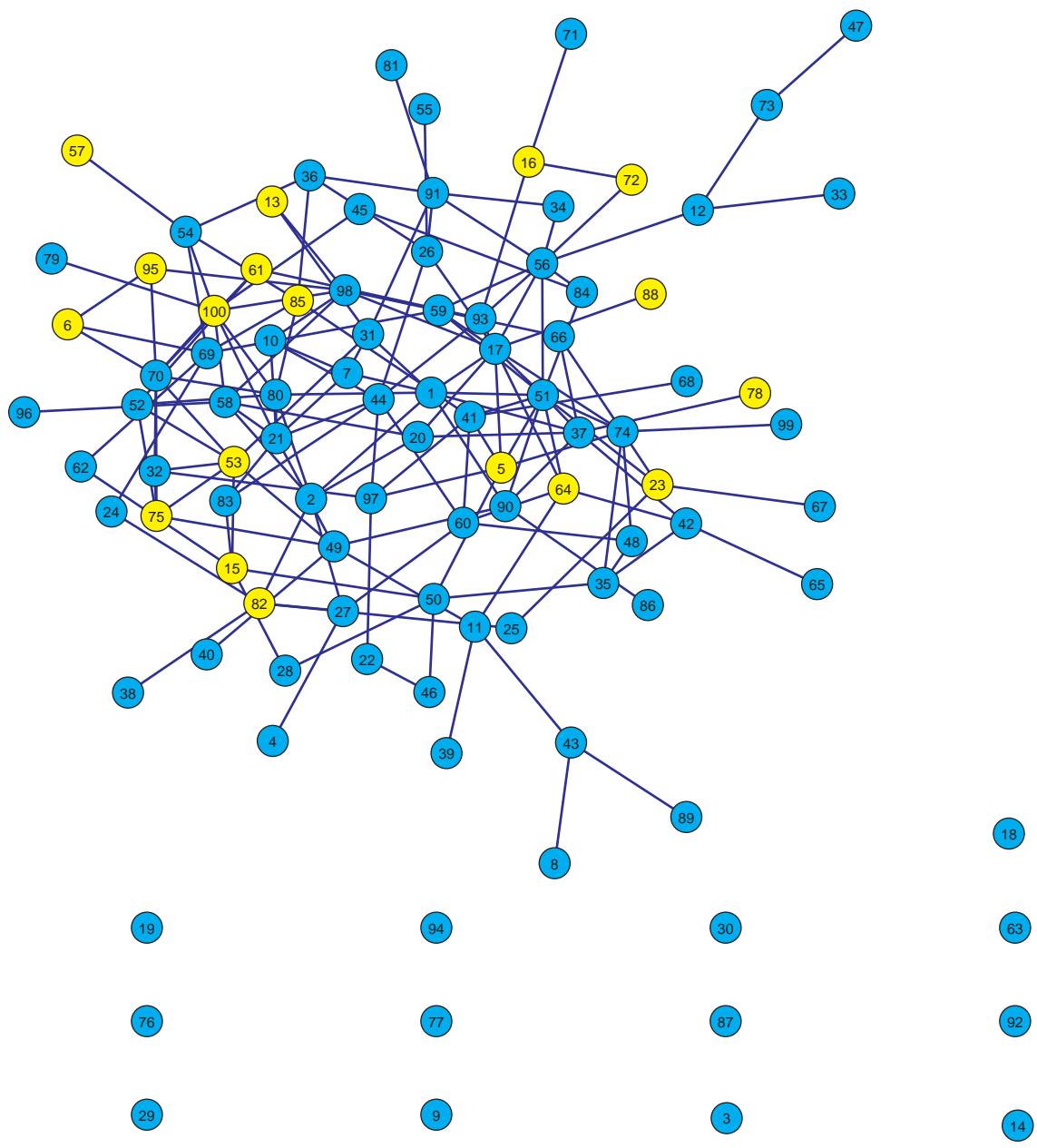


Figure 3. Cohesive subgroups in the Italian network (weak components in 2-slices)

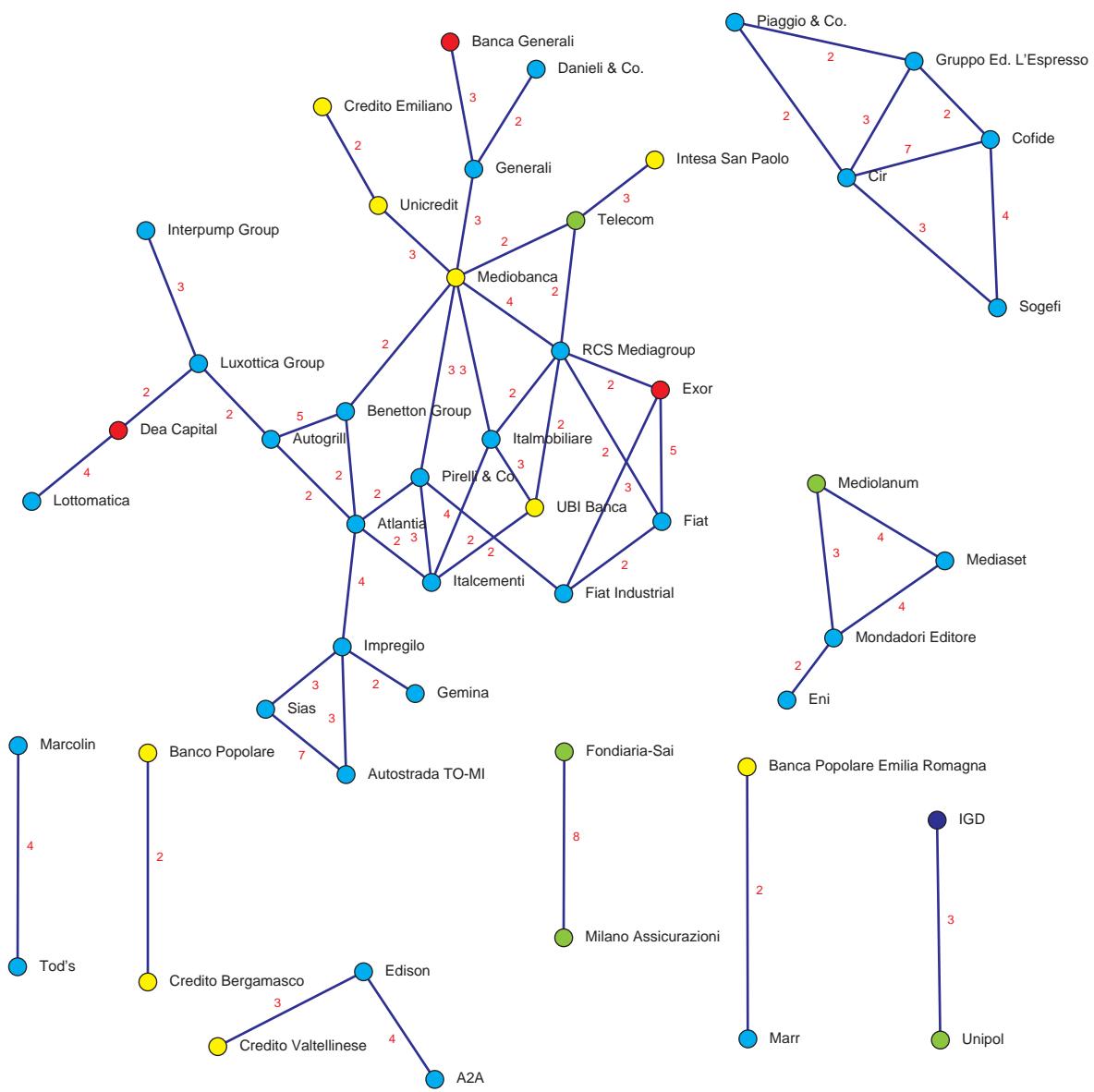


Figure 4. Network of the subset of financial companies included in the top-100 firms in Italy

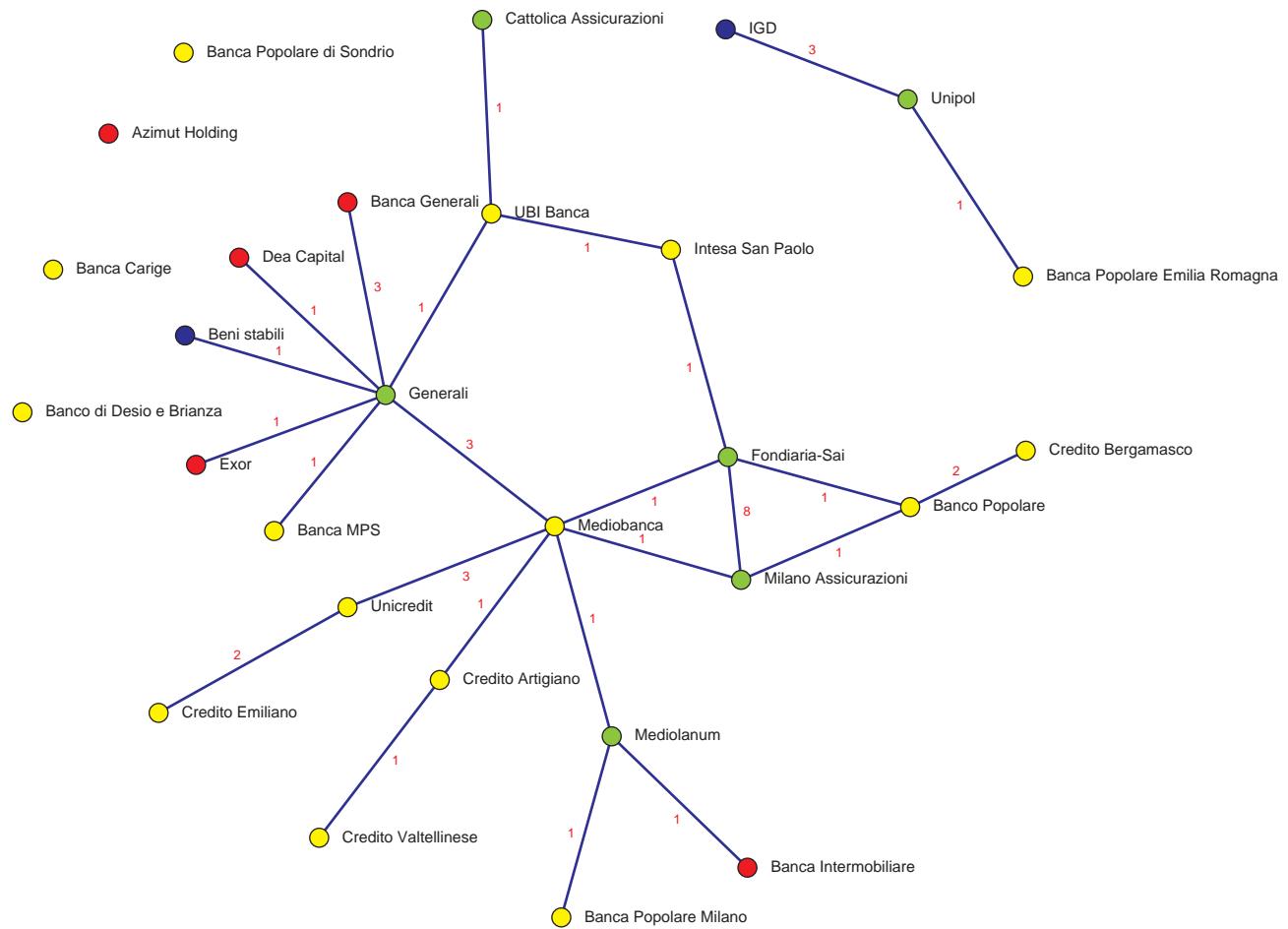
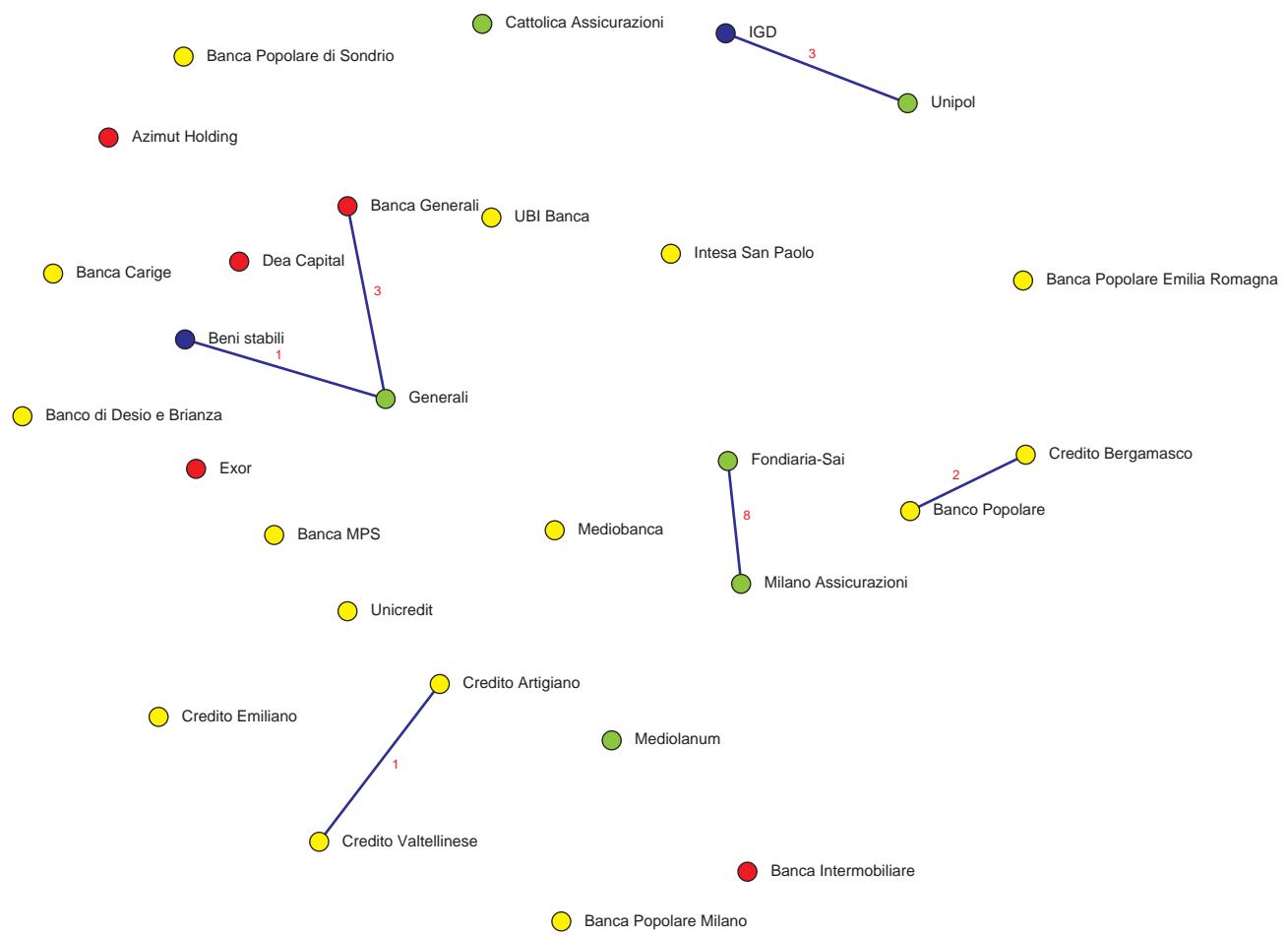


Figure 5. The network of Italian financial companies when the Section 36 is applied (broad interpretation)



**Figure 6.** The network of Italian financial company when the Section 36 is applied (narrow interpretation)

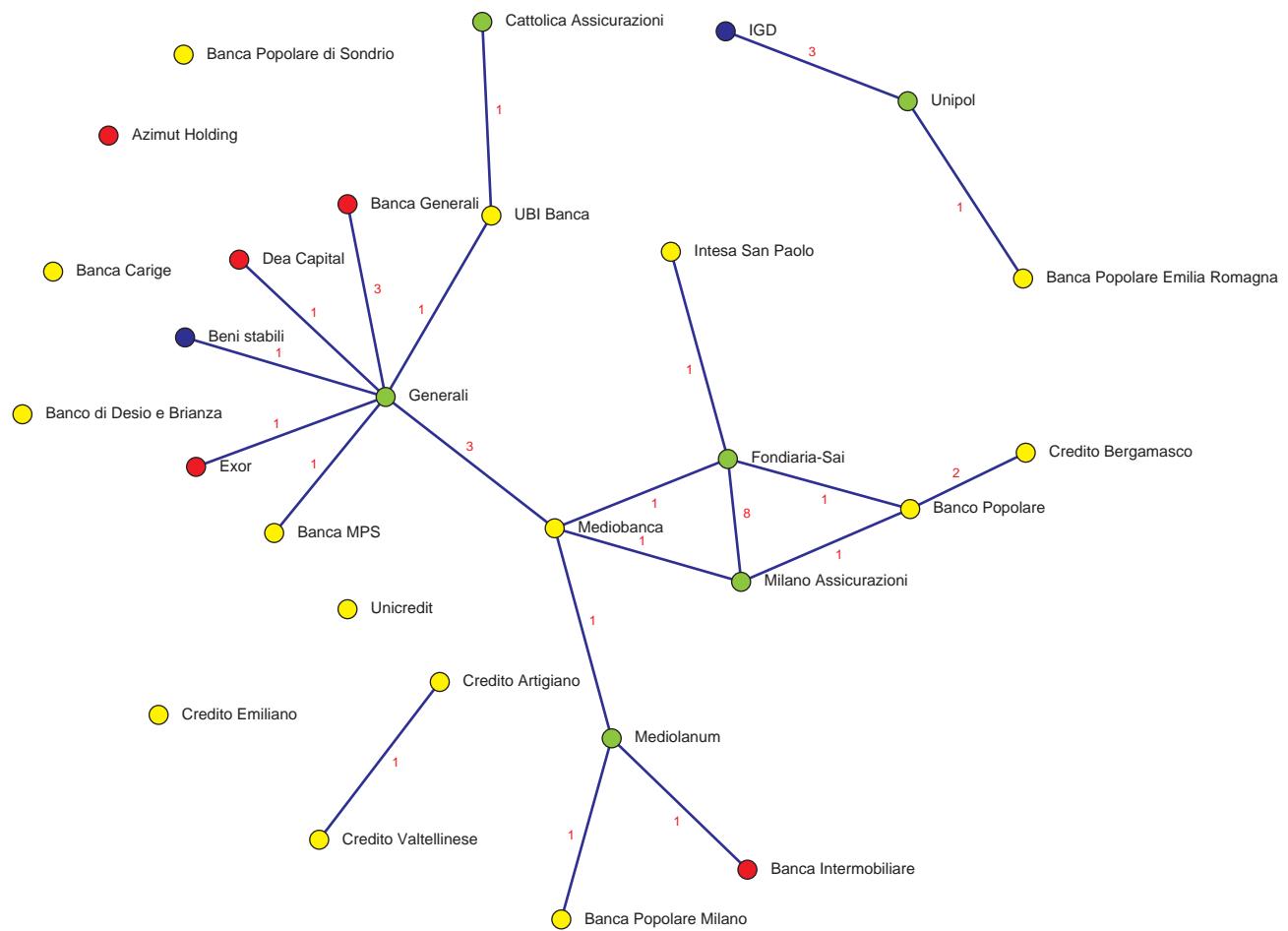


Table A1

Table A1

Label	Company	Degree	All Closeness centrality	Normalized all degree	Betweenness centrality
1	A2A	6	0,350	0,061	0,015
2	Acea	4	0,345	0,040	0,003
3	Amplifon	5	0,327	0,051	0,015
4	Ansaldo Sts	4	0,337	0,040	0,023
5	Ascopiave	4	0,291	0,040	0,004
6	Astaldi	1	0,249	0,010	-
7	Atlantia	19	0,458	0,192	0,062
8	Autogrill	11	0,412	0,111	0,015
9	Autostrada TO-MI	7	0,345	0,071	0,010
10	Azimut Holding	2	0,292	0,020	-
11	Banca Carige	4	0,346	0,040	0,004
12	Banca Generali	8	0,387	0,081	0,010
13	Banca Intermobiliare	2	0,284	0,020	0,002
14	Banca MPS	3	0,336	0,030	0,001
15	Banca Popolare di Sondrio	3	0,319	0,030	0,002
16	Banca Popolare Emilia Romagna	3	0,257	0,030	0,003
17	Banca Popolare Milano	9	0,356	0,091	0,025
18	Banco di Desio e Brianza	1	0,289	0,010	-
19	Banco Popolare	7	0,346	0,071	0,024
20	Benetton Group	8	0,395	0,081	0,003
21	Beni stabili	6	0,375	0,061	0,008
22	Buzzi Unicem	3	0,313	0,030	0,002
23	Cairo Communication	0	-	-	-
24	Campari	3	0,299	0,030	0,003
25	Cattolica Assicurazioni	2	0,304	0,020	0,000
26	Cementir Holding	3	0,312	0,030	0,001
27	Cir	10	0,383	0,101	0,025
28	Cofide	8	0,380	0,081	0,014
29	Credito Artigiano	5	0,360	0,051	0,020
30	Credito Bergamasco	1	0,254	0,010	-
31	Credito Emiliano	2	0,287	0,020	0,001
32	Credito Valtellinese	5	0,313	0,051	0,006
33	Danieli & Co.	3	0,326	0,030	0,003
34	Datalogic	5	0,312	0,051	0,032
35	De' Longhi	11	0,390	0,111	0,062
36	Dea Capital	8	0,390	0,081	0,021
37	Diasorin	2	0,263	0,020	-
38	Edison	4	0,307	0,040	0,004
39	Enel	2	0,290	0,020	0,001
40	Enel Green Power	1	0,312	0,010	-
41	Engineering	2	0,316	0,020	0,000
42	Eni	12	0,421	0,121	0,020
43	Erg	0	-	-	-
44	Exor	7	0,369	0,071	0,023
45	Falck Renewables	5	0,324	0,051	0,012
46	Fiat	10	0,399	0,101	0,043
47	Fiat Industrial	9	0,406	0,091	0,010
48	Fondiaria-Sai	12	0,417	0,121	0,021
49	Gas Plus	3	0,319	0,030	0,005
50	Gemina	9	0,392	0,091	0,027
51	Generali	19	0,451	0,192	0,064
52	GEOX	1	0,312	0,010	-
53	Gruppo Ed. L'Espresso	13	0,408	0,131	0,034
54	Hera	3	0,249	0,030	0,000
55	IGD	3	0,276	0,030	0,005
56	IMA	2	0,251	0,020	0,002
57	Impregilo	8	0,372	0,081	0,024
58	Indesit Company	5	0,353	0,051	0,001
59	Interpump Group	10	0,393	0,101	0,033
60	Intesa San Paolo	11	0,415	0,111	0,032
61	Iren	6	0,333	0,061	0,007

Table A1

62 Italcementi	14	0,440	0,141	0,051
63 Italmobiliare	12	0,413	0,121	0,028
64 Lottomatica	4	0,331	0,040	0,005
65 Luxottica Group	19	0,453	0,192	0,097
66 Maire Tecnimont	2	0,312	0,020	-
67 Marcolin	5	0,356	0,051	0,003
68 Marr	3	0,297	0,030	0,009
69 Mediaset	9	0,402	0,091	0,011
70 Mediobanca	22	0,483	0,222	0,103
71 Mediolanum	7	0,382	0,071	0,035
72 Milano Assicurazioni	8	0,397	0,081	0,012
73 Mondadori Editore	12	0,408	0,121	0,030
74 Nice	2	0,281	0,020	-
75 Parmalat	13	0,431	0,131	0,053
76 Piaggio & Co.	9	0,369	0,091	0,016
77 Pirelli & Co.	25	0,463	0,253	0,116
78 Prysmian	7	0,393	0,071	0,011
79 RCS Mediagroup	19	0,458	0,192	0,058
80 Recordati	0	-	-	-
81 Safilo Group	0	-	-	-
82 Saipem	5	0,343	0,051	0,023
83 Salvatore Ferragamo	1	0,298	0,010	-
84 Saras	6	0,378	0,061	0,003
85 Save	0	-	-	-
86 Sias	2	0,286	0,020	-
87 Snam rete gas	1	0,253	0,010	-
88 Sogefi	3	0,311	0,030	-
89 Sol	2	0,271	0,020	-
90 Sorin	6	0,360	0,061	0,022
91 Telecom	17	0,456	0,172	0,071
92 Telecom Italia Media	4	0,326	0,040	0,003
93 Terna	6	0,359	0,061	0,008
94 Tod's	7	0,364	0,071	0,012
95 Trevi Fin Industriale	3	0,285	0,030	0,007
96 UBI Banca	8	0,393	0,081	0,017
97 Unicredit	8	0,397	0,081	0,032
98 Unipol	4	0,318	0,040	0,029
99 Yoox	1	0,236	0,010	-
100 Zignago Vetro	5	0,330	0,051	0,008

Table A2

Label	Company	Degree	All Closeness centrality	Normalized all degree	Betweenness centrality
1	3M Co.	8	0,324	0,081	0,054
2	Abbott Laboratories	6	0,273	0,061	0,041
3	Altria Group Inc.	0	-	-	-
4	Amazon.com Inc.	1	0,193	0,010	-
5	American Express Company	6	0,302	0,061	0,039
6	American International Group, Inc.	3	0,239	0,030	0,004
7	Amgen Inc.	4	0,273	0,040	0,004
8	Anadarko Petroleum Corporation	1	0,163	0,010	-
9	Apache Corp.	0	-	-	-
10	Apple Inc.	4	0,268	0,040	0,005
11	AT&T, Inc.	4	0,255	0,040	0,072
12	Baker Hughes Incorporated	3	0,234	0,030	0,052
13	Bank of America Corporation	2	0,240	0,020	0,001
14	Baxter International Inc.	0	-	-	-
15	Berkshire Hathaway Inc.	5	0,255	0,051	0,029
16	BlackRock Inc.	3	0,221	0,030	0,019
17	Boeing Co.	10	0,337	0,101	0,091
18	Bristol-Myers Squibb Company	0	-	-	-
19	Carnival Corporation	0	-	-	-
20	Caterpillar Inc.	4	0,283	0,040	0,014
21	Chevron Corporation	8	0,296	0,081	0,051
22	Cisco Systems, Inc.	2	0,213	0,020	0,004
23	Citigroup Inc.	4	0,265	0,040	0,031
24	Colgate-Palmolive Co.	2	0,221	0,020	0,007
25	Comcast Corporation	2	0,223	0,020	0,005
26	ConocoPhillips	5	0,279	0,051	0,031
27	Corning Inc.	4	0,248	0,040	0,029
28	Costco Wholesale Corporation	2	0,216	0,020	-
29	CVS Caremark Corporation	0	-	-	-
30	Danaher Corp.	0	-	-	-
31	Deere & Company	5	0,289	0,051	0,028
32	Dell Inc.	4	0,252	0,040	0,009
33	Devon Energy Corporation	1	0,185	0,010	-
34	DIRECTV	2	0,241	0,020	-
35	eBay Inc.	4	0,249	0,040	0,012
36	EI DuPont de Nemours & Co.	4	0,247	0,040	0,011
37	Eli Lilly & Co.	7	0,290	0,071	0,040
38	EMC Corporation	1	0,186	0,010	-
39	Emerson Electric Co.	1	0,198	0,010	-
40	Express Scripts Inc.	1	0,215	0,010	-
41	Exxon Mobil Corporation	6	0,298	0,061	0,042
42	Ford Motor Co.	4	0,251	0,040	0,025
43	Freeport-McMoRan Copper & Gold Inc.	3	0,200	0,030	0,035
44	General Electric Co.	7	0,302	0,071	0,056
45	Gilead Sciences Inc.	2	0,250	0,020	0,004
46	Google Inc.	2	0,198	0,020	0,001
47	Halliburton Company	1	0,153	0,010	-
48	Hewlett-Packard Company	3	0,249	0,030	0,004
49	Honeywell International Inc.	6	0,284	0,061	0,063
50	Intel Corporation	5	0,249	0,051	0,032
51	International Business Machines Corp.	12	0,351	0,121	0,142
52	Johnson & Johnson	4	0,259	0,040	0,005
53	JPMorgan Chase & Co.	7	0,277	0,071	0,038
54	Kraft Foods Inc.	5	0,255	0,051	0,027
55	Lowe's Companies Inc.	1	0,212	0,010	-
56	Marathon Oil Corporation	9	0,310	0,091	0,125
57	Mastercard Incorporated	1	0,198	0,010	-
58	McDonald's Corp.	6	0,278	0,061	0,030
59	Medtronic Inc.	4	0,297	0,040	0,026
60	Merck & Co. Inc.	5	0,282	0,051	0,041
61	MetLife, Inc.	3	0,253	0,030	0,011
62	Microsoft Corporation	2	0,232	0,020	0,006
63	Monsanto Co.	0	-	-	-
64	Morgan Stanley	5	0,295	0,051	0,072
65	News Corp.	1	0,195	0,010	-
66	Nike Inc.	3	0,256	0,030	0,008
67	Occidental Petroleum Corporation	1	0,204	0,010	-
68	Oracle Corp.	1	0,223	0,010	-
69	Pepsico, Inc.	6	0,271	0,061	0,041

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70 Pfizer Inc.	8	0,279	0,081	0,034
71 Philip Morris International, Inc.	1	0,177	0,010	-
72 PNC Financial Services Group Inc.	2	0,232	0,020	0,007
73 Praxair Inc.	2	0,186	0,020	0,018
74 Procter & Gamble Co.	8	0,292	0,081	0,047
75 Prudential Financial Inc.	5	0,253	0,051	0,006
76 QUALCOMM Incorporated	0	-	-	-
77 Schlumberger Limited	0	-	-	-
78 Simon Property Group Inc.	1	0,218	0,010	-
79 Southern Company	1	0,217	0,010	-
80 Target Corp.	7	0,302	0,071	0,038
81 Texas Instruments Inc.	1	0,207	0,010	-
82 The Bank of New York Mellon Corporation	5	0,235	0,051	0,031
83 The Coca-Cola Company	3	0,260	0,030	0,009
84 The Dow Chemical Company	3	0,277	0,030	0,010
85 The Goldman Sachs Group, Inc.	5	0,273	0,051	0,022
86 The Home Depot, Inc.	1	0,221	0,010	-
87 Time Warner Inc.	0	-	-	-
88 U.S. Bancorp	1	0,244	0,010	-
89 Union Pacific Corporation	1	0,163	0,010	-
90 United Parcel Service, Inc.	5	0,296	0,051	0,035
91 United Technologies Corp.	6	0,271	0,061	0,037
92 Unitedhealth Group, Inc.	0	-	-	-
93 Verizon Communications Inc.	5	0,291	0,051	0,060
94 Viacom	0	-	-	-
95 Visa, Inc.	3	0,246	0,030	0,004
96 Walgreen Co.	1	0,211	0,010	-
97 Wal-Mart Stores Inc.	5	0,272	0,051	0,032
98 Walt Disney Co.	7	0,293	0,071	0,043
99 Well Point Inc.	1	0,219	0,010	-
100 Wells Fargo & Company	8	0,288	0,081	0,051