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INTERNAL CAPITAL MARKETS IN ITALIAN BUSINESS GROUPS: EVIDENCE FROM THE FINANCIAL CRISIS

by Raffaele Santioni* and Ilaria Supino*

Abstract

Using unique detailed data, we describe the role of internal capital markets in Italian business groups before and after the financial crisis, an exogenous event which provides an ideal setting to assess whether the working of internal capital markets helps group-affiliated firms to mitigate external financial constraints. Our findings support the hypothesis that internal capital markets are typically activated by firms standing at the top of the control chain given their easier access to external borrowing. Larger and more profitable firms serve as internal suppliers of capital and support financially constrained group members that struggle to stay viable. We also show that firms affiliated to larger and diversified groups benefit from the existence of internal mechanisms of resource reallocation that can substitute external finance when it becomes more expensive and hard to access. During the crisis, group-affiliated firms were more likely to survive than unaffiliated firms.

JEL Classification: G01, G30, G32, G34.

Keywords: business groups, internal capital markets, financial crisis.

Contents

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1. Introduction[1]

The widespread crisis experienced by the world economy since 2007 has reinvigorated scholarly attention on corporate funding choices. Under stressed financial market conditions, firms struggled to raise capital from traditional external providers and tried to secure alternative sources of funding. This provided researchers with a new stimulus to document the trade-off between internal and external modes of financing, while addressing the question of whether the services of outside capital markets can be replaced and under which circumstances.

In this paper we analyse the role of internal capital markets in Italian business groups assessing their scale, functioning and importance to the national economy. We track reallocation flows within enterprise groups before and after the financial crisis, an event that is likely to have magnified the impact of internal capital markets on resource exchange. Indeed, especially in the years following the outbreak of the sovereign debt crisis in the Eurozone, sources of external financing such as bank loans and corporate bonds became more expensive and, in some cases, difficult or impossible to obtain. In a scenario of financial distress, the ability of Italian business groups to redistribute resources across group members may have been essential.

Our paper contributes to the existing literature in several ways. First, it builds upon previous work on the ownership and control structures of Italian companies. We provide an unprecedented, full assessment of the business groups operating in Italy, shedding light on their internal composition and economic relevance. Second, it adds to the growing volume of research exploring how business groups can replace external financing at times of impaired credit market functioning. Third, our findings have implications for the literature on the consequences of internal capital allocation. We have evidence that, on average, internal capital markets engage in cross-subsidization and provide group members with a financing advantage over standalone firms.

The rest of the paper proceeds as follows. Section 2 provides a brief overview of the literature. Section 3 describes the data and Section 4 discusses the evidence concerning the

[1] We would like to thank Giorgio Albareto, Alessandro Fabbrini, Riccardo De Bonis, Giovanni D'Alessio, Fabio Schiantarelli and Philip E. Strahan for their guidance, comments and suggestions. We are solely responsible for any and all errors. The views expressed herein are ours and do not necessarily reflect those of the Bank of Italy.

functioning of internal capital markets. Section 5 compares affiliated and independent firms over a relevant set of indicators, both in pre- and post-crisis years. Section 6 concludes.

2. Business groups and internal capital markets

Unlike conglomerates, business groups consist of related but legally independent firms held together by multiple ties (cross-stockholdings, financial inter-linkages, etc.) under a unique ownership structure. Nevertheless, group members can autonomously raise external financing (Cestone and Fumagalli, 2005; Bianco and Nicodano, 2006) and can choose not to bail out ailing affiliated units (Nicodano, 2003). Among potential advantages, group members can benefit from common affiliation and can use internal capital markets as an alternative funding channel to support financially constrained firms.

Business groups remain a prevalent organizational form across both developed (ECGN, 1997; La Porta et al., 1999; Barca and Becht, 2002) and developing countries (Khanna, 2000; Claessens et al., 2002). However, the vast majority of published research on business groups has underestimated or even neglected the role that enterprise groups play in advanced economies, focusing instead on countries at an earlier stage of development where failings in basic legal, financial and market infrastructures have led to the emergence of groups as second-best responses to institutional voids (Leff, 1978; Khanna and Palepu, 1997).

Past literature has looked into specific aspects of business group formation and activity. It has extensively detected, for instance, how the allocation of funds within a group's corporate boundaries takes place through the functioning of an internal capital market. A number of papers have addressed the question of whether internal markets allocate scarce resources in an efficient (bright side) or inefficient (dark side) way. According to Stein (2003), internal mechanisms of capital distribution permit (i) the avoidance of underinvestment problems that divisions (or group members) would experience if operating as standalones (more-money effect), as well as (ii) the value-enhancing reallocation of assets towards successful projects and away from poorly performing ones (smarter-money effect). Both these effects are based on the assumption that extensive knowledge of investment prospects ensures accurate information and enables the headquarters to make better allocation decisions. Internal capital markets countervail

financial market dislocation and contribute to reducing the transaction costs associated with external financing.

However, these benefits are sometimes hard to realize in practice. Empirical evidence has been offered in support of the claim that "cross-subsidies in internal capital markets often tend to be 'socialist' in nature" (Scharfstein and Stein, 2000), resulting in resource misallocation and exacerbating the problem of overinvestment in low-profit business activities. The centralization of capital may also leave room for opportunistic behaviors such as managerial rent-seeking (Meyer et al., 1992), power-grabbing (Rajan et al., 2000; Scharfstein and Stein, 2000) or tunnelling (Bertrand et al., 2002).

Few prior works have investigated the inner workings of internal capital markets in business groups, with a specific focus on emerging economies. Gopalan et al. (2007) show that Indian firms with limited access to intermediated funds can benefit from capital reallocation within the group when they suffer negative cash-flow shocks. Buchuk et al. (2014) confirm the positive role of internal markets in relaxing financing frictions in Chilean control pyramids, but find no support for the tunnelling hypothesis in the presence of strict regulation and disclosure requirements. Almeida et al. (2015) find that Korean chaebol use their internal markets to mitigate the negative effects of a financial crisis on investments and performance.

In addition, little evidence is available on internal capital markets established within European groups. Dewaelheyns and Van Hulle (2006) argue that group-internal markets may distort predictions on the survival chances of distressed member affiliates as compared with independent peers in Belgium. Gorodnichenko et al. (2009) find that participation in German Konzerns alleviates market imperfections for small firms. Boutin et al. (2013) demonstrate how French business groups are able to shift liquidity in favor of financially constrained affiliates, providing them with a competitive advantage over their standalone rivals in the product market.

In Italy, group membership is a salient and persistent feature of the industrial structure (Barca et al., 1994; Cannari and Gola, 1996; Bianchi et al., 2005; Santioni, 2012). In 2014, one third of total employment in industry and services occurs at firms affiliated with Italian business groups. They generate 55 per cent of total value added in the industrial and service sectors (Istat, 2017); listed firms controlled via pyramids accounted for 18 per cent of the market (Consob, 2016).

The ownership structure of Italian groups has been extensively examined, but only a limited number of empirical studies have specifically looked at the functioning of internal capital markets. Buzzacchi and Pagnini (1994) consider a sample of 510 industrial firms to study the importance of intra-group transactions in Italy. They confirm the reallocation function of internal capital markets, showing that the amount of resources exchanged through internal channels is comparable to the amount of funds raised externally by the corporate groups. In a similar vein, Schiantarelli and Sembenelli (2000) use a panel of private Italian firms classified into two categories according to their ownership structure: independent firms and business group members. Their findings provide strong support for the existence of internal capital markets that help group-affiliated firms to alleviate market imperfections and to gain a financial advantage over standalones. Santioni et al. (2017) use a novel dataset that combines data on the structure of Italian groups with data on both firm performance and the financial soundness of the banking sector. Their results suggest that firms in business groups were more likely to survive in the wake of the global financial crisis and the euro area sovereign debt crisis compared with unaffiliated firms. During the crisis, the overall relevance of internal capital transfers increases; funds move from cash-rich to cash-poor firms and to firms with more favorable investment opportunities.

To the best of our knowledge, this is the first study that assesses the relevance and the workings of internal capital markets in Italian business groups over the last decade, separating episodes of crises from normal times.

3. Data and descriptive statistics

Our analysis is based on two main sources of data, both from the Company Accounts Data System (Centrale dei Bilanci/Cerved). The first source is Gruppi Italiani, an electronic database which collects information on the ownership structures of the entire universe of Italian business groups, both financial and non-financial (see Section 3.1).[2] The second is a firm-level accounting dataset which provides comprehensive balance sheet information for the entire universe of Italian limited companies (see Section 3.2).

[2] We acknowledge the support of the Cerved Group in providing us with Gruppi Italiani data.

3.1 Data on ownership structures

Gruppi Italiani collects data on more than 145,000 business groups on the basis of consolidated financial reporting, shareholders' lists maintained by the Chambers of Commerce and notifications of major holdings of shares that listed companies are obliged to disclose to the Italian Securities and Exchange Commission (CONSOB). It provides data on firms operating in Italy which are affiliated with domestic and foreign groups; it also contains group-specific details in terms of prevalent economic activity and level of integration. Information is updated monthly and, for a sub-sample of the bigger groups (exceeding one billion EUR in terms of consolidated revenues), is also validated quarterly and integrated with press reports and corporate communications.

Methodologically, the reconstruction process consists of various phases. First, control relationships between companies are identified based on the ultimate owner (i.e. the largest shareholder located at the upper echelons of the ownership chain who holds directly or indirectly controlling stakes in other firms). A dominant influence is exerted through centralized coordination when control is performed on a de jure or de facto basis, or when a firm's share capital is (i) equally distributed among different owners (such as in joint ventures) or (ii) subject to any shareholder agreements. As a consequence, the controller can be more or less visible depending on how the control is actually exercised.

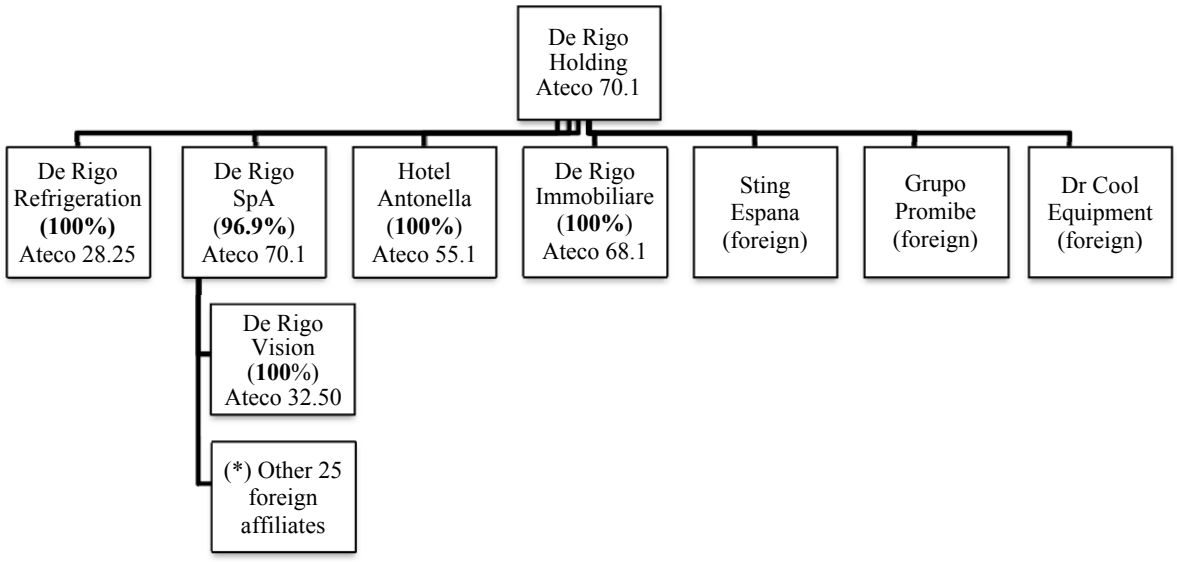
Details obtained from Gruppi Italiani allow us to map the hierarchical structures of the universe of Italian business groups.[3] The holding company is defined according to specific criteria: it may be either a corporation (i.e. a firm positioned at the apex retaining control over bottom-tier companies, but which is not, in turn, controlled by any individual or legal entity) or one or more natural persons who ultimately own controlling shares in at least two separate firms that make up the group.

Irrespective of whether the ultimate owner is a company or not, a control link is identified when the holding company – or one of the held firms operating in the next tier down – owns a certain percentage of the firms standing at the bottom of the pyramid. In Figure 1, the corporate structure of an Italian business group is shown.

[3] The Cerved archive also distinguishes between simple and complex groups: the former are characterized by the presence of a unique holding, while the latter show more than one holding companies positioned within a hierarchical structure.

Figure 1

An example of the ownership structure: the De Rigo Group in 2014



Source: Gruppi Italiani.

3.2 Data on financials and firm demographics

Data on firm characteristics. Detailed information on accounting records, geographic location, the type of business entity and the sector(s) of economic activity are drawn from the Cerved database, which collects mandatory disclosures for the entire universe of Italian limited companies from 1993 onwards.[4] Information is gathered under five broad categories: individual balance sheet data, industry affiliation, firm size, composition of the company's financial structure and intra-group transactions.

Financials are presented in different formats.[5] Because of non-harmonized reporting templates, we reconcile data in order to ensure that two or more sets of records can be easily compared without further modification. In addition, specific criteria for inclusion in the dataset are set out: first, we consider only active firms with turnover and total assets greater than zero; second, firms are required to have statements of cash flows (whether

[4] Financial statements refer to a 12-month period and are deposited each year at the local Chamber of Commerce.

[5] Five reclassification schemes are compiled by Cerved based on the type of activity carried out by each firm: industrial transformation, real estate companies, financial and factoring, holding, and leasing.

presented by the company itself or reconstructed by Cerved); third, financial statements prepared in abbreviated form are included under the condition that financial or trade payables are recognized and fully disclosed.

Industrial affiliation is defined according to the ISTAT classification system ATECO 2007.[6] Alternatively, we use the Central Credit Register when the ATECO code is not available. Information on the number of employees (often unavailable in the Cerved database) is mainly obtained from an administrative source called Infocamere and based on the Register of Companies. Firms are further categorized into four size classes as defined in accordance with Commission Recommendation 2003/361/EC and measured in terms of employees and annual turnover (or employees and total assets). According to the same criteria, size is also defined at the group-level (see Table A1 in Appendix A).

The Cerved archive provides balance sheet information about the capital structure and the firm's performance. This allows us to compute a set of ratios used to gauge member firms' financial health and to make comparisons with independent companies. Key financial and non-financial indicators are defined and classified in Appendix A (see Table A2) according to the insights they provide.

We then merge Gruppi Italiani and Cerved data by matching up observations based on a common key identifier, the fiscal code. After the merging we are able to disentangle affiliated and unaffiliated firms; the merging of the two datasets does not entail any deletion of firms and consequently lacks any selection bias. The final dataset consists of 158,670 group-affiliated firms in 2006 (188,826 in 2014) for which we provide complete details on annual accounts. We then include 355,025 independent firms for the pre-crisis period and 402,271 for the post-crisis phase.

Data on internal capital markets. In accordance with national rules, individual firms are required to indicate in the balance sheet – compiled as envisaged by Art. 2424 of the Italian Civil Code – any intra-group lending or borrowing relationships. Likewise, Art.

[6] Cf. Council Regulation n. 1165/98 on short-term statistics. Please note that we exclude from the scope of observation those economic activities related to: agriculture, forestry and fishing (Section A, NACE classification), community, social and personal services (Section O, NACE classification), activities of membership organizations (division 94); activities of households as employers; undifferentiated goods and services producing activities of households for own use (Section T, NACE classification), extraterritorial organizations and bodies (Section U, NACE classification), public institutions and private non-profit entities. For the purpose of the analysis, financial service firms are screened out. We remove financial companies because they are few in number and limited intra-group information exists.

2425 of the Italian Civil Code, requires that items relating to "controlled, affiliated and controlling undertakings" be indicated separately in the income statement. Companies are also allowed to prepare abridged financial statements, which are not required to contain details on intercompany transactions.

The information on intra-group positions is contained in a dedicated section ("position towards the group") of the reclassified financial statements, to which we refer for our research purposes. This section thoroughly describes intra-group operations, providing us with details on intra-group sales, shareholdings in controlled, controlling or other related firms, and financial and trade receivables (or payables) from other group members, just to mention few. As Table A2 in Appendix A reports, some key measures are constructed based on these items. Later in the paper, we will better point out how internal resources are allocated within the group. When testing the operation of internal capital markets, we further narrow down our dataset to include observations from firms that display at least one populated item in the intra-group section; the resulting dataset consists of 49,877 firms in 2006 (60,520 in 2014).

3.3 Data description

To date no comprehensive study has attempted to fully reconstruct the perimeter of Italian business groups while describing under which form of ownership arrangements they operate. We use a large archive which covers roughly 80 per cent of the entire universe of Italian limited liability companies in the Italian Register of Active Firms (Archivio Statistico delle Imprese Attive – ASIA).

Micro- and small-sized firms make up the vast majority of enterprises within the country (see Table 1). Approximately one third of these firms are affiliated to a business group, while the remaining ones compete in the market on a standalone basis. Among larger companies, membership in a group is widespread, with very few medium- and large-sized enterprises operating as independent entities.

Table 1

Data description: firms and employees by affiliation status

(number of active firms and employees)

	2006		2014	
	Affiliated			
	Firms	Employees	Firms	Employees
Firm size (1)				
Micro and small	140,054	804,133	170,101	984,699
Medium and large	18,616	3,806,283	18,725	3,891,621
Geographic area (2)				
North-West	57,205	1,938,897	65,239	2,014,335
North-East	39,067	1,059,953	44,352	1,177,837
Centre	37,044	1,086,295	44,965	1,108,705
South and Islands	25,354	525,271	34,270	575,443
Sector				
Industry	32,767	1,899,466	33,576	1,782,977
Construction	19,615	236,027	21,837	252,369
Services	106,288	2,474,923	133,413	2,840,974
Total	**158,670**	**4,610,416**	**188,826**	**4,876,320**
	Unaffiliated			
	Firms	Employees	Firms	Employees
Firm size (1)				
Micro and small	345,102	1,357,320	392,304	1,773,660
Medium and large	9,923	1,059,908	9,967	1,148,617
Geographic area (2)				
North-West	110,030	837,518	120,856	949,214
North-East	76,494	567,263	86,595	696,225
Centre	84,752	493,573	95,326	588,762
South and Islands	83,749	518,874	99,494	688,076
Sector				
Industry	63,792	844,035	67,637	845,548
Construction	51,328	236,493	54,553	246,337
Services	239,905	1,336,700	280,081	1,830,392
Total	**355,025**	**2,417,228**	**402,271**	**2,922,277**

Source: Our processing of Gruppi Italiani and Cerved data.

(1) For size definitions see Table A1 in Appendix A. – (2) Location of the firm's head office.

In 2006, according to our data, about 160,000 firms with 4.6 million employees (representing 66 per cent of total employed persons) were affiliated to a business group; in 2014 there were less than 190,000 affiliated firms and about 4.9 million employees (62.5 per cent of the total). Most firms enjoying group membership have less than 50 employees, are located in the northern part of the country and are active in the industry and service sectors. Medium and large firms in groups are notably less diffused and are nearly twice (about 200 employees per firm) as large as their independent peers. These features remained almost unchanged over time.

Table 2 presents the number of group-affiliated enterprises for 2006 and 2014 by group size class. More than half of the affiliated firms are in simple group structures, which consist of no more than two active firms.[7] Companies in more complex groups (i.e. those with at least ten affiliated firms) are few in number but have a strong economic impact in terms of jobs created: while representing only 5.5 per cent of enterprises in 2016 (3.8 in 2014), they account for 26.4 per cent of total employment of groups (23.3 in 2014).

Table 2

The size of Italian business groups (1)

(number of active firms and employees; average values)

	2006			2014		
Number of firms	Firms	Employees	Employees per firm	Firms	Employees	Employees per firm
1	51,110	840,500	16.4	59,672	863,575	14.5
2	62,890	970,991	15.4	77,194	1,061,177	13.7
3 – 4	25,402	907,447	35.7	31,630	913,588	28.9
5 – 9	10,588	672,297	63.5	13,287	902,960	68.0
10 and above	8,680	1,219,181	140.5	7,043	1,135,020	161.2
Total	**158,670**	**4,610,416**	**29.1**	**188,826**	**4,876,320**	**25.8**

Source: Our processing of Gruppi Italiani and Cerved data.

(1) We only consider active firms incorporated in Italy. This implies that a group consisting of one active firm may instead include at least (i) a foreign holding and/or a foreign affiliate or (ii) a non-active holding and/or non-active subsidiary based in Italy.

The average number of employees per firm belonging to micro and small groups is 5, while firms in medium-large groups average 90 employees (see Table B1 in Appendix B). Micro and small companies represent the entirety of firms belonging to smaller groups and the overwhelming majority of those present in groups of medium and large scale; however, small-sized firms affiliated to medium-large groups are, on average, bigger than similar firms in micro and small groups or comparable standalones.

In order to assess the extent to which our dataset covers the entire universe of companies, we compare Gruppi Italiani data on affiliated firms with those disclosed by Asia Gruppi, the official register on enterprise groups maintained by the national statistics

[7] Please note that we only consider active firms incorporated in Italy. This implies that a group consisting of one active firm may instead include at least (i) a foreign holding and/or a foreign affiliate or (ii) a non-active holding and/or subsidiary based in Italy.

bureau (ISTAT). Comparisons are performed across several dimensions, in both the periods we consider for the study.

Different methodologies are applied by Cerved and ISTAT to identify the perimeter of a business group.[8] ISTAT, for instance, defines firm size classes in terms of employees (while we use employees and annual turnover or total assets) and uses several administrative sources (Italian Social Security Administration, Italian Revenue Agency) that are not available to us. Table 3 synthetizes the representativeness of our data on the number of firms and workers.

Table 3

Data comparison by firm size

(number of active firms and employees)

Firm size	2006		2014	
	Gruppi Italiani	Asia Gruppi	Gruppi Italiani	Asia Gruppi
	Number of active firms			
Micro and small	140,054	147,281	170,101	190,590
Medium and large	18,616	15,450	18,725	15,139
Total	**158,670**	**162,731**	**188,826**	**205,729**
	Number of employees			
Micro and small	804,133	1,092,332	984,699	1,127,908
Medium and large	3,806,283	4,449,186	3,891,621	4,445,391
Total	**4,610,416**	**5,541,519**	**4,876,320**	**5,573,299**

Source: Our processing of Gruppi Italiani, Cerved and ISTAT-Asia Gruppi data.

We group firms into two size-based clusters in order to explain their representativeness across two relevant dimensions: regional location and sector affiliation. Based on geographic distribution (Figure 2), firms included in our dataset cover almost the entire population of firms present in Asia Gruppi. Interestingly, our data explain – both in terms of firms and employees – the near totality of affiliated firms located in southern Italy, thus avoiding the underrepresentation of this area as is often the case.

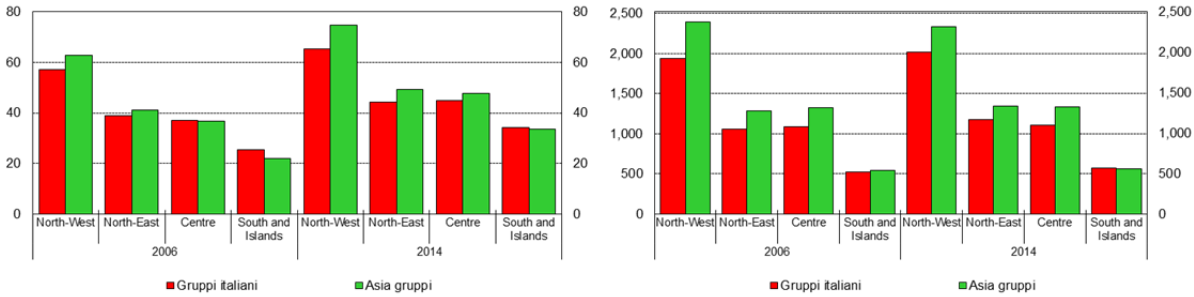
[8] Data sources may differ from each other or may use different rules to classify the same dimension. This explains why our dataset over-represents the universe along some dimensions.

Figure 2

Data comparison by geographic location

(thousands)

(a) number of active firms *(b) number of employees*



Source: Our processing of Gruppi Italiani, Cerved and ISTAT-Asia Gruppi data.

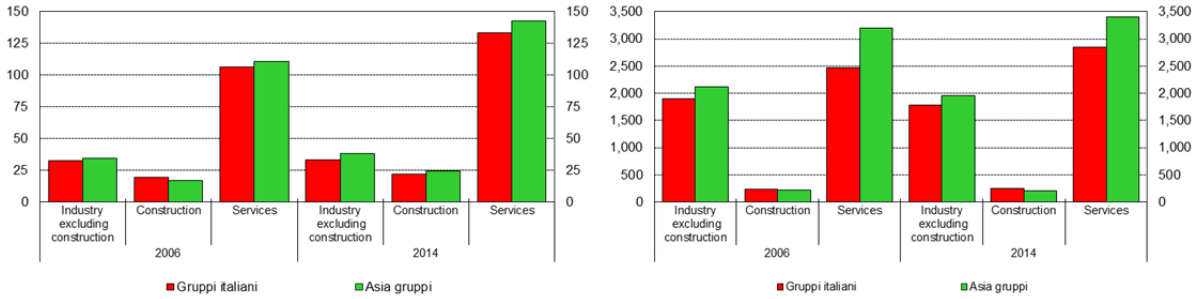
Figure 3 provides a breakdown of enterprises by sector and shows the distribution of the employed persons across economic segments. Data refer to both the pre- and post-crisis periods and include industry, construction and services. Our data are able to fairly represent all the Italian groups, regardless of the type of industry they operate in: firms in groups are almost entirely concentrated in the service sector, a leading sector of the Italian economy even before the financial crisis.

Figure 3

Data comparison by sector affiliation

(thousands)

(a) number of active firms *(b) number of employees*



Source: Our processing of Gruppi Italiani, Cerved and ISTAT-Asia Gruppi data.

4. The functioning of internal capital markets

4.1 Group financial structures and intra-group flows

There are several ways of exchanging financial resources among affiliated firms which form part of the same business group. Available funds can be reallocated internally through multiple channels such as intra-group loans, mutual debt guarantees, subscription of shares and bonds, dividend distributions, transfer prices and deferred payments (Buzzacchi and Pagnini, 1994; Almeida et al., 2015; Gopalan et al., 2007; Buchuk et al., 2014).

Intra-group exposure can originate from either cross-holdings or credit lines that a member firm makes available to other group members. However, since the most relevant channel through which Italian business groups transfer resources is internal borrowing, we choose the *intra-group net financial position* as the main variable of interest, measured as the difference between intra-group financial debt and intra-group financial credit: it takes a positive value if the firm is borrowing from other group members.

Italian accounting standards require companies to provide details of their financial position towards the group they belong to (see Section 3.2). This enables us to have data on intra-group transactions and to assess their relative weight in covering firms' overall financing needs. Our intention is to show the relevance and the direction of intra-group financial flows, identifying the main features of group members which benefit from the internal capital market.

Table 4 synthetises the financial situation of the groups with several indicators assessing their profitability and financial viability (see Table A2 in Appendix A for variable definitions). Those results are broken down by group size, distinguishing holdings and sub-holdings from affiliates. This allows us to identify allocation patterns and to evaluate whether and how the magnitude of internal capital markets has changed because of the economic crisis.

In medium- and large-sized groups, internal markets are much more developed. Bank borrowings are an important source of funding, but in some cases (holdings and sub-holdings) it is not a major one. After the onset of the financial crisis, affiliates are less dependent on banks, with greater recourse to internal finance: the relative weight of intra-

group loans on total financial debt increased by 4 percentage points between 2006 and 2014, which speaks of a substitution between external (bank) debts and internal lending. Holding companies are found to borrow at a slightly lower cost compared with other group members.

Table 4

Performance, financial structure and intra-group reallocation by group layer level (1)

(per cent; weighted averages)

Indicator	2006		2014	
	Holdings Sub-holdings	Affiliates	Holdings Sub-holdings	Affiliates
	Micro and small groups			
EBITDA/Operating assets	6.9	7.5	4.8	5.9
ROE	4.2	4.9	1.4	2.7
ROA	3.4	3.9	1.8	2.3
Leverage	56.4	65.7	51.4	58.3
Bank debt exposure	62.2	63.9	64.9	64.4
Intra-group financial debts/Financial debts	23.0	26.6	16.1	22.6
Intra-group financial debts/Assets	11.0	13.2	7.3	10.4
Intra-group trade debts/Assets	3.3	6.4	4.6	5.3
Cost of debt	4.2	4.5	3.3	3.5
	Medium and large groups			
EBITDA/Operating assets	12.3	8.8	8.3	9.1
ROE	7.4	6.8	4.9	5.0
ROA	6.1	4.8	3.6	4.2
Leverage	46.6	50.1	49.9	49.7
Bank debt exposure	37.0	53.2	29.6	47.2
Intra-group financial debts/Financial debts	31.7	41.1	31.3	44.9
Intra-group financial debts/Assets	9.9	15.2	12.6	17.1
Intra-group trade debts/Assets	3.6	6.4	3.9	6.5
Cost of debt	4.6	4.8	3.5	3.6
	Total			
EBITDA/Operating assets	12.0	8.6	8.1	8.4
ROE	7.3	6.5	4.8	4.6
ROA	6.0	4.6	4.8	4.6
Leverage	46.9	52.6	49.9	51.4
Bank debt exposure	37.8	55.2	30.8	51.4
Intra-group financial debts/Financial debts	31.6	40.0	31.0	42.4
Intra-group financial debts/Assets	9.9	15.1	12.5	16.6
Intra-group trade debts/Assets	3.6	6.4	3.9	6.5
Cost of debt	4.6	4.7	3.5	3.5

Source: Our processing of Gruppi Italiani and Cerved data.
(1) For size definitions see Table A1 in Appendix A.

In comparison with firms in larger groups, those in smaller groups – either holdings or affiliates – perform worst, are more leveraged and are highly dependent on the banking sector even after the financial crisis. Most micro and small groups are poorly diversified (see Section 4.3) and have at their disposal a limited share of internal resources (in relation to both total debts and assets).

Looking at the composition of borrowing, we find that the share of bank debt on total debt is particularly relevant in controlled rather than controlling firms. This could be due to the fact that affiliates are, on average, smaller than holdings and sub-holdings, and have fewer opportunities to diversify their sources of finance. Table B1 in Appendix B shows that most affiliates are small companies which represent the totality of firms affiliated to micro and small groups and more than half of those belonging to larger groups. However, parent companies at the top of medium-sized and large business groups are predominantly large firms that can exploit their scale to secure funding options alternative to bank loans (see Figure B1 in Appendix B).

4.2 The direction of internal flows

Internal capital reallocation follows a top-down scheme: resources are channelled away from the upper nodes of the group towards companies located at the bottom of the pyramid (see Table 5).

Table 5

Intra-group flows by group layer level

(per cent; weighted averages)

Indicator	2006		2014	
	Number of firms	Intra-group net financial position/Assets	Number of firms	Intra-group net financial position/Assets
Holdings	17.7	-5.9	17.6	-4.2
Sub-holdings	4.8	-0.2	5.0	1.0
Affiliates	77.4	4.7	77.4	4.9
Total	**100.0**	**0.4**	**100.0**	**1.0**

Source: Our processing of Gruppi Italiani and Cerved data.

Holding companies act as the main suppliers of funds, while receivers are often in the lower ranks; funds flow along the control chain to finance firms demanding for intra-group support, especially in times of financial distress. Affiliated firms are, on average, net

receivers with a net financial position that represents 4.7 per cent of total assets in 2006 (4.9 per cent in 2014).

In medium-sized and large groups providers are typically larger firms (see Table 6): they are, on average, three times bigger than receivers in terms of turnover and have a greater amount of collateralizable assets. Providers are also more profitable and more dependent on external financiers, in line with the idea that companies with stronger bargaining power leverage it to obtain better credit conditions.

Table 6

Providers and receivers: some features (1)

(thousands of euros and per cent; averages)

Indicator	2006		2014	
	Net providers (NFP<0)	Net receivers (NFP>0)	Net providers (NFP<0)	Net receivers (NFP>0)
	Micro and small groups			
NFP towards the group (2)	-779	713	-1,151	673
Turnover	987	819	530	465
Assets	3,328	1,873	3,326	1,978
External finance/Assets	37.5	19.9	33.3	19.3
EBITDA/Operating assets	7.4	6.6	5.6	5.1
ROE	3.2	3.3	2.0	2.4
ROA	3.5	3.4	2.1	2.0
Number of firms	4,805	5,950	7,396	9,180
	Medium and large groups			
NFP towards the group (2)	-13,888	11,466	-15,130	14,632
Turnover	15,876	5,574	14,454	4,214
Assets	20,138	8,326	21,203	8,653
External finance/Assets	25.4	13.0	20.7	10.8
EBITDA/Operating assets	8.7	7.3	9.0	6.7
ROE	4.4	3.9	4.6	3.9
ROA	4.3	3.6	3.7	2.8
Number of firms	7,617	9,677	9,108	10,897
	Total			
NFP towards the group (2)	-8,817	7,372	-8,866	8,250
Turnover	6,113	2,462	3,254	1,411
Assets	9,862	4,281	9,401	3,977
External finance/Assets	28.5	15.4	23.9	14.5
EBITDA/Operating assets	8.2	7.0	7.6	6.0
ROE	4.0	3.7	3.4	3.1
ROA	4.0	3.5	2.9	2.5
Number of firms	12,422	15,627	16,504	20,077

Source: Our processing of Gruppi Italiani and Cerved data.
(1) For size definitions see Table A1 in Appendix A. – (2) The net financial position towards the group of providing firms is supposed to be equal, in absolute terms, to that of receiving ones. However, based on our data, we are not able to: (i) trace inflows (outflows) from (to) affiliates that are abroad; (ii) always have complete information on each affiliated firm of the group.

Compared with large business groups, smaller ones do not have the scale to internalize the costs associated with operating an internal capital market. This results in less channels of resource transfer and, consequently, in a lower volume of intra-group exchanges. In such a case, our estimates show no significant differences between providers and receivers in terms of firm features.

The provider–receiver status also depends on the likelihood of a firm being constrained by external financing. Following Lamont et al. (2001), we construct the Kaplan and Zingales index (KZ) of financial constraints for each group member in each year considered. The index is calculated using the following formula:

$$\begin{aligned}\text{KZ Index} = {} & -1.002*\text{Cash Flow/K} + 0.283*\text{Tobin}'\text{s Q} + 3.139*\text{Debt/Total Capital} \\ & -39.368*\text{Dividends/K} - 1.315*\text{Cash equivalent assets/K}\end{aligned} \tag{1}$$

where the KZ index loads positively on Tobin's Q (market-to-book) and Leverage, negatively on Cash Flow, Dividends and Cash equivalent assets. In line with the extant empirical literature, we sort firms into different categories based on the KZ index ranking: firms are classified as "financially constrained" ("financially unconstrained") if their KZ index lies in the top (bottom) three deciles, with status changes allowed over time. This sorting does not imply that the firms ranked in the top (bottom) three deciles are completely constrained (unconstrained).

Our results (see Table 7) show different levels of leverage and profitability across constrained and unconstrained firms, the former being more leveraged (80 per cent versus 44 in 2006; 74 per cent versus 39 in 2014) and less profitable (with a ROA of around 1 or 2 per cent) than the latter. We also find that financially constrained firms are considerably smaller than their financially unconstrained counterparts, even though differences in size dwindle after the crisis.

Companies in need receive a large amount of resources from other group members not facing financial constraints, a tendency that is more marked after the outbreak of the crisis: between 2006 and 2014, the net financial position increased by about 40 per cent. In 2014, unconstrained firms became, on average, providers of funds: their net financial position towards the group turned negative throughout the period of analysis, suggesting

greater support was provided to struggling firms when the crisis tightened financial constraints.

Table 7

Intra-group flows by Kaplan-Zingales index

(thousands of euros and per cent; averages)

Indicator	Kaplan-Zingales Index			
	Constrained	Unconstrained	Constrained	Unconstrained
	2006		2014	
NFP toward the group	3,136	3,061	4,405	-2,951
-if Net providers (NFP<0)	-2,585	-6,798	-3,494	-10,946
-if Net receivers (NFP>0)	7,293	11,620	9,803	4,425
Total assets	31,862	76,313	36,169	63,947
Leverage	0.80	0.44	0.74	0.39
ROA	1.90	8.79	1.12	7.82
Number of firms	7,783	5,639	10,499	6,711

Source: Our processing of Gruppi Italiani and Cerved data.

4.3 The role of group diversification

We also consider the effects of group-level diversification in influencing the functioning of an internal capital market. Intuitively, business groups composed of firms operating in the same or like industries are less likely to share resources in an internal market mechanism. One explanation is that firms affiliated to poorly diversified groups tend to exhibit similar performance when a common industry shock hits their businesses.

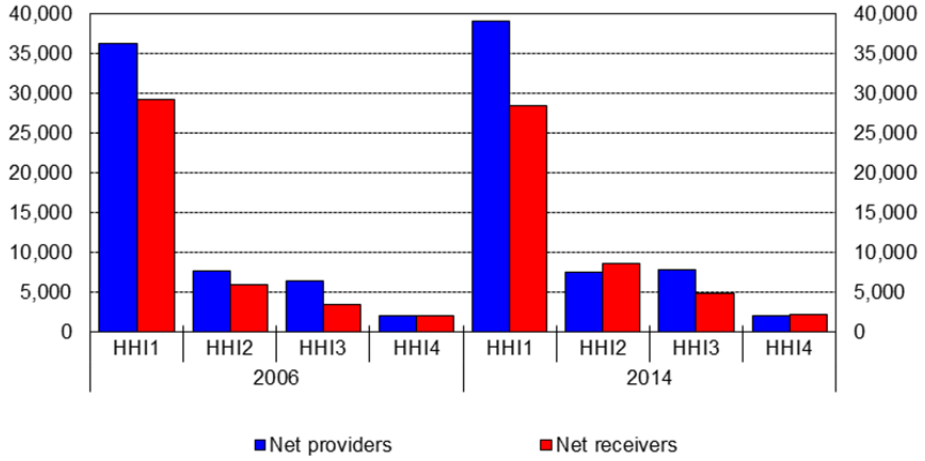
The Herfindahl-Hirschman index (HHI) is then constructed at group level to capture the degree of diversification across industries over the period considered (a higher HHI means that a business group is concentrated in few economic sectors). Figure 4 shows a negative correlation between the net financial position towards the group (both for providers and receivers, in absolute terms) and the level of diversification: the less concentrated a business group is, the better the chances of establishing a cross-industry

internal capital market that acts as a conduit for the shifting of funds from members in flourishing sectors to other members which could have suffered industry-specific shocks.[9]

Figure 4

Net financial position towards the group by degree of diversification (1) (2)

(thousands of euros; averages)



Source: Our processing of Gruppi Italiani and Cerved.

(1) HHI is computed on sales at group level based on 3-digit SIC classification. The HHI can take the following values: $0 \leq HHI1 \leq 0.25$, $0.25 < HHI2 \leq 0.50$, $0.50 < HHI3 \leq 0.75$, $0.75 < HHI4 \leq 1.00$. – (2) Providing firms' net financial position towards the group is measured in absolute terms.

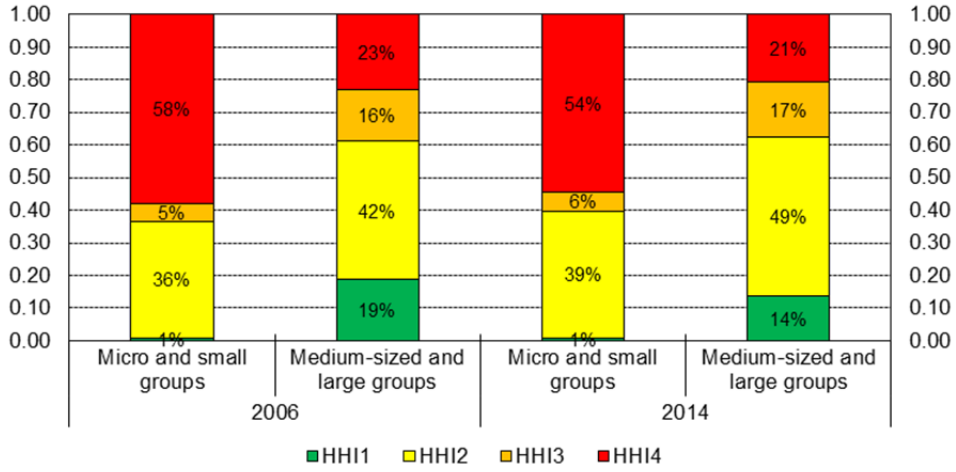
The level of diversification is positively associated with the size of the business group itself. Figure 5 shows that among the firms affiliated to medium and large groups, 19 per cent belonged to widely diversified groups (those with HHI1) in 2006 (14 per cent in 2014); these percentages are close to zero for members of small groups (first/third column in the figure below).

[9] Similar results are obtained using a measure of group-level diversification called the concentration ratio. We consider a group to be diversified when affiliated firms operate in at least two different economic sectors and sales do not originate from a sole type of economic activity.

Figure 5

Group size and diversification (1)

(per cent)



Source: Our processing of Gruppi Italiani and Cerved data.

(1) HHI is computed on sales at group level based on 3-digit SIC classification. The HHI can take the following values: $0 \leq HHI1 \leq 0.25$, $0.25 < HHI2 \leq 0.50$, $0.50 < HHI3 \leq 0.75$, $0.75 < HHI4 \leq 1.00$.

5. Group-affiliated firms vis-à-vis standalones: a pre- and post-crisis analysis.

In going through the literature in the first part of the paper, we pointed out how firms belonging to business groups operate under a variety of conditions (i.e. better reputation, cross-fund subsidization, lesser default risk) that differentiate them from unaffiliated companies. To pinpoint the impact of group membership on corporate performance in the periods preceding and following the crisis, we now compare the economic and financial results of business group affiliates with those of standalone companies active in the same industries. The analysis embraces both pre- and post-crisis periods.

In general, group members exhibit larger asset size compared with standalones. Micro and large firms in groups are approximately three times bigger than their independent peers, while small- and medium-sized affiliated firms are about twice as large as their unaffiliated counterparts in terms of total assets. So group members have a stronger bargaining position in negotiations with external financiers since they can rely on a greater

dimension both at firm and group level. In Table 8 we report the results obtained after controlling for firm size.[10]

Table 8

Performance and financial indicators by size and affiliation status (1)

(per cent; weighted averages)

Indicator	2006		2014	
	Affiliated	Unaffiliated	Affiliated	Unaffiliated
	Micro and small enterprises			
Profitability				
EBITDA/Operating assets	7.1	8.2	5.8	7.0
ROE	4.6	5.1	2.3	4.3
ROA	3.5	4.0	2.2	3.0
Financial structure				
Leverage	58.8	64.9	50.8	58.3
Financial debts/Turnover	46.6	36.5	64.0	41.7
Bank debts/Financial debts	60.9	63.0	60.8	62.8
Short-term financial debts/Financial debts	40.8	44.1	36.7	39.4
Cost of debt	4.4	4.4	3.9	3.2
	Medium and large enterprises			
Profitability				
EBITDA/Operating assets	10.4	9.3	9.0	8.8
ROE	7.4	1.6	5.4	4.3
ROA	5.7	4.5	4.1	3.9
Financial structure				
Leverage	47.5	53.1	50.5	51.0
Financial debts/Turnover	39.3	32.6	46.7	29.6
Bank debts/Financial debts	42.1	71.9	33.6	65.8
Short-term financial debts/Financial debts	47.4	50.9	45.7	48.0
Cost of debt	4.7	4.7	3.5	4.0
	Total			
Profitability				
EBITDA/Operating assets	9.8	8.6	8.3	7.7
ROE	7.0	3.6	4.7	4.3
ROA	5.2	4.2	3.7	3.3
Financial structure				
Leverage	49.6	60.0	50.6	55.6
Financial debts/Turnover	40.4	34.8	48.8	36.0
Bank debts/Financial debts	45.5	66.2	39.2	63.7
Short-term financial debts/Financial debts	46.1	46.6	43.9	42.3
Cost of debt	4.6	4.8	3.5	3.9

Source: Our processing of Gruppi Italiani and Cerved data.
(1) For size definitions see Table A1 in Appendix A.

[10] See Figure B2 in Appendix B for a breakdown by sector.

In both periods micro- and small-sized independent firms are found to outperform their group-affiliated peers, a difference which becomes even larger after the crisis. Medium-sized and large unaffiliated firms also improved their profitability in 2014, reducing their performance gap with comparable group members. This dynamic is even more remarkable when we take into account a close population, that consists of all firms that remained in the dataset over the entire period of analysis.

These results could be explained through the differences in survival rates between affiliated and independent firms: affiliated firms may have had higher survival rates due to the internal capital market which may have helped subsidize weaker group members during the crisis, keeping afloat firms that would have otherwise left the market; on the other hand, independent firms – not having access to a similar reallocation channel – underwent a severe market selection process that led the more profitable firms to survive and the unsuccessful ones to fail. If we consider the probabilities of changing status over time given different credit scoring levels (as defined at the beginning of the period), we find that unaffiliated firms are more likely to exit the market than their affiliated counterparts. This general trend can be observed across all z-score classes but the difference in transition probabilities is much bigger for healthier firms (Table 9).

Table 9

Transition probabilities by risk class (1)

Affiliated firms	**Rating in 2014**				
	Safe firms	Solvent firms	Vulnerable firms	Risky firms	Exit (no balance sheet)
Rating in 2006	(a) Affiliated firms				
Safe firms	37%	17%	5%	4%	37%
Solvent firms	11%	32%	11%	7%	38%
Vulnerable firms	3%	18%	19%	12%	47%
Risky firms	2%	7%	11%	16%	64%
	(b) Unaffiliated firms				
Safe firms	34%	15%	5%	4%	43%
Solvent firms	11%	27%	11%	7%	43%
Vulnerable firms	3%	16%	18%	12%	49%
Risky firms	1%	6%	10%	16%	66%

Source: Our processing of Gruppi Italiani and Cerved data.

(1) Safe firms (SCORE = 1 and 2), solvent firms (SCORE = 3 and 4), vulnerable firms (SCORE = 5 and 6), risky firms (SCORE = 7, 8, and 9). The score is computed annually using a discriminant analysis based on a series of balance sheet indicators (assets, rates of return, debts, etc.).

In the post-crisis phase, though both affiliated and unaffiliated smaller firms dropped their debt levels, standalones remained more leveraged than business group affiliated firms with greater exposure to banks and short-term debt. Large unaffiliated firms were quite reliant on bank borrowing: the proportion of bank debts to total financial debts was around 30 percentage points higher than affiliated firms.

On the other hand, large group members increased their leverage and reduced their bank debts since the crisis erupted. This seems to suggest that, when external market conditions worsened, firms in business groups started to replace bank funding with alternative forms of financing (such as internal debts or bonds). In addition to this, larger affiliated firms also enjoyed cheaper access to financing as compared with standalones: in 2014 the cost of borrowed capital was 0.5 percentage points lower for group members (see Table 8).

6. Conclusions

In this paper we assess the role of internal capital markets in Italian business groups. The functioning and importance of internal capital markets are analysed in a cohort of domestic group-affiliated firms, comparing pre- and post-crisis periods. Our results support the hypothesis that internal mechanisms of resource reallocation can help member firms to access capital during periods of financial frictions.

First, we show how relevant internal capital markets are in large groups, where affiliated firms make extensive use of intra-group debt as a source of financing alternative to bank lending, especially in the period after the crisis. Conversely, no significant substitution effect between external and internal funding occurs in smaller groups which remain largely dependent upon the banking sector.

Second, we consider the position of each firm within the group and we find that internal fund transfers follow a specific pattern, with funds usually being directed from holding companies to other members located at the bottom of the group structure. On average, holdings and sub-holdings have a higher leverage ratio compared with lower-tiered firms and exhibit negative net financial positions. These findings are consistent with our hypothesis that controlling firms internally reallocate (to other companies affiliated to the group) the resources they are able to borrow (at a more reasonable cost) from external

financiers. Holding companies are indeed able to borrow at a lower cost compared with other group members.

Third, we test whether the degree of financing constraints influences the likelihood of a group member to be a net provider (or receiver) of intra-group loans. Our evidence suggests that internal funding is provided from unconstrained to constrained firms, especially during the financial crisis. In short, it would seem that internal capital markets – where available – have been used to cross-subsidize group members facing difficulties when the crisis occurs, preventing them from being pushed out of the market.

Fourth, we identify the characteristics of those firms that supply and that obtain intra-group loans. Providers are larger firms, with higher profits and higher external debts. We show that resources are more likely to be exchanged internally in business groups not specialized in a few industries: the more diversified a group is, the greater the amount of intra-group flows that can be transferred between group members.

Finally, we perform a comparison between group and standalone firms before and after the financial crisis. We acknowledge the role played by the internal capital markets in supporting weaker group members, which have been given a better chance of surviving the financial crisis. Faced with a worsening financial situation, affiliated firms have been able to count on their peers, benefiting from group support for financing. In other words, the activation of internal capital markets has helped group-affiliated firms (including those with fewer opportunities to succeed) to remain in marketplace, while less efficient firms which have not received similar assistance have instead been forced to exit.

Appendix A

A1. Definition of corporate scope

Table A1

Firm size	*Description*
Micro	less than 10 employees and an annual turnover or total assets of up to 2 million EUR
Small	less than 50 workers and an annual turnover or total assets of 2-10 million EUR
Medium	up to 250 employees and an annual turnover of less than 50 million EUR or total assets below 43 million EUR
Large	all remaining firms

Business groups are classified in the above four classes. For the purposes of the analysis, we group together either micro and small enterprises (or groups), or medium and large ones.

A2. Variable definitions: firm and intra-group level

Table A2

Indicator	*Operationalization*
Profitability	
Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA)	Revenues minus operating expenses, excluding depreciation and amortization.
Operating assets	Total fixed assets plus short-term assets, excluding total financial assets, financial receivables, cash and cash equivalent assets.
Return on Equity (ROE)	Ratio of net adjusted profit (adjusted profit before taxes minus income tax paid minus taxes on wealth and other taxes) to shareholders' equity before dividends (shareholders' equity plus declared distributions).
Return on Assets (ROA)	Ratio of current profit before financial charges (current profit before interest and taxes plus financial income minus financial charges) to total assets.
Financial structure	
Financial debts	The total amount of financial liabilities towards shareholders and other financiers.
Leverage	Total financial debts divided by total equity plus total financial debts.
Cost of debt	Ratio of interest paid on debt financing to total financial debts.
Bank debt exposure	Ratio of total bank debts to total financial debts.
Short-term financial debts	All financial debts with a residual maturity of less than one year.
KZ Index	Measure of financial constraints constructed in the following way: -1.002*Cash Flow/K+0.283*Tobin′s Q+3.139*Debt/Total Capital -39.368*Dividends/K-1.315*Cash equivalent assets/K
Intra-group	
Net financial position (NFP) toward the group	Intra-group financial payables minus intra-group financial receivables.
Net trade position (NTP) toward the group	Intra-group trade payables minus intra-group trade receivables.

A3. Performance and financial indicators

All the indicators reported in Table A2 are calculated on a yearly basis, adopting a specific outlier treatment. We set distribution delimiters at the 5th and 95th percentiles, keeping only those values that are contained within this range. Each value which falls outside the interval established is replaced with a missing one.

Appendix B

Table B1

Group composition by firm size

(a) number of active firms

Group size	Firm size				
	Micro	Small	Medium	Large	**Total**
			2006		
Micro	62,755				**62,755**
Small	21,290	29,639			**50,929**
Medium	9,310	7,051	10,621		**26,982**
Large	5,635	4,374	3,977	4,018	**18,004**
Total	**98,990**	**41,064**	**14,598**	**4,018**	**158,670**
			2014		
Micro	80,994				**80,994**
Small	27,366	34,409			**61,775**
Medium	10,131	7,676	10,691		**28,498**
Large	5,167	4,358	3,809	4,225	**17,559**
Total	**123,658**	**46,443**	**14,500**	**4,225**	**188,826**

(b) number of employees

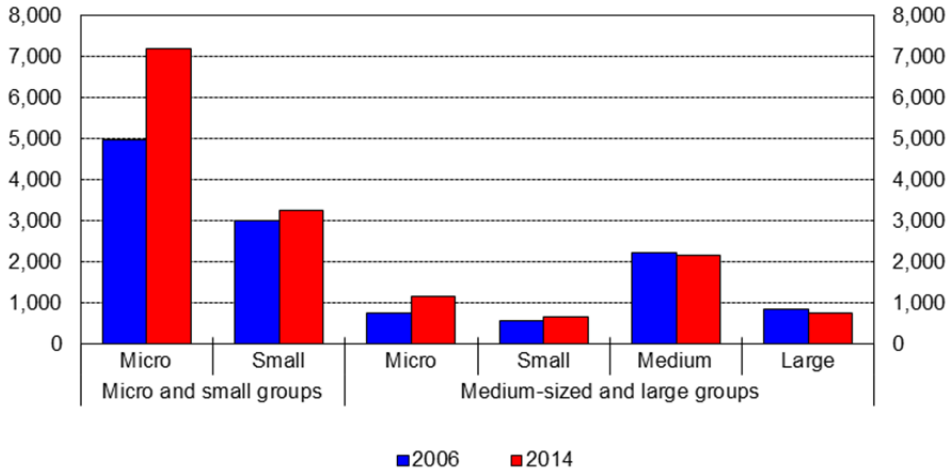
Group size	Firm size				
	Micro	Small	Medium	Large	**Total**
			2006		
Micro	64,792				**64,792**
Small	33,118	484,807			**517,925**
Medium	9,061	135,303	756,052		**900,416**
Large	4,498	72,554	329,123	2,721,108	**3,127,283**
Total	**111,469**	**692,664**	**1,085,175**	**2,721,108**	**4,610,416**
			2014		
Micro	107,716				**107,716**
Small	48,464	584,708			**633,172**
Medium	12,635	153,360	751,191		**917,186**
Large	5,565	72,251	312,718	2,827,712	**3,218,246**
Total	**174,380**	**810,319**	**1,063,909**	**2,827,712**	**4,876,320**

Source: Our processing of Gruppi Italiani and Cerved data.

Figure B1

Group size and holding size

(number of active firms)



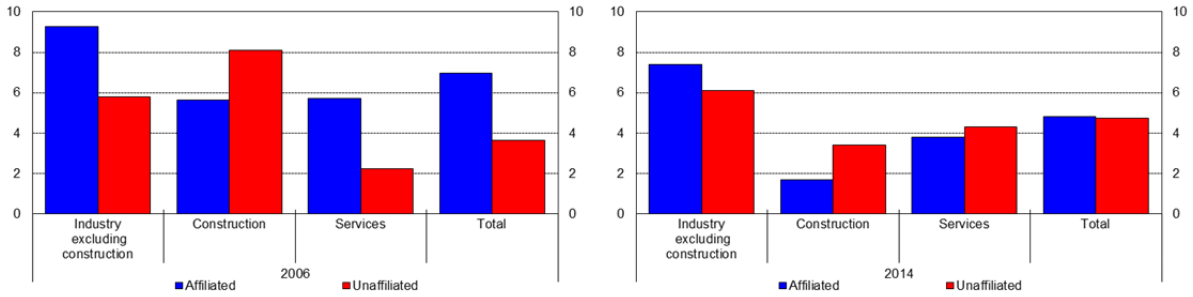
Source: Our processing of Gruppi Italiani and Cerved data.

Figure B2

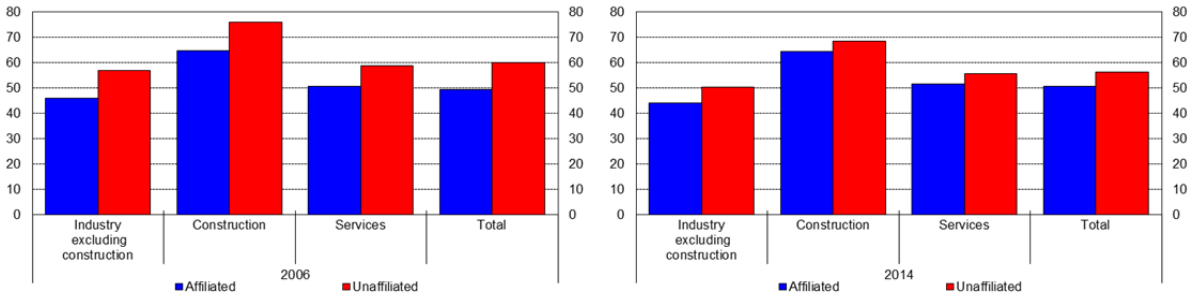
Performance and financial indicators by sector

(per cent; weighted averages)

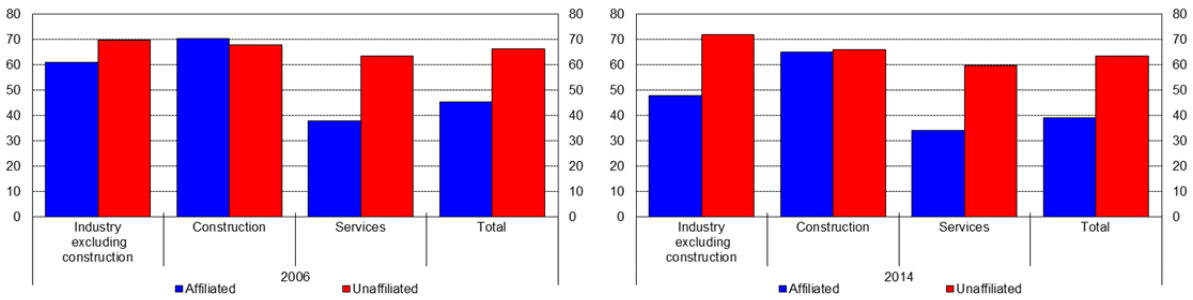
(a) ROE



(b) Leverage



(c) Bank debts over total financial debts



Source: Our processing of Gruppi Italiani and Cerved data.

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