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**On the functioning of business groups:
economic rationale, financial structure
and performance.**

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To my mum,
who taught me to think. To love.

Still. *Always.*

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Introduction

Business groups are organizational forms which stand in the middle between hierarchies and markets, in the sense that they formally rely upon within-boundaries mechanisms of coordination while occasionally replicating market-like methods. Business groups (hereinafter also BGs) are collections of independent firms bound together under a unique ownership that gain some advantage from common affiliation.

In my dissertation, I explore the role played by business groups in Italy in different periods of time. I describe the main features of Italian business groups (predominantly family- or state-owned) while assessing their relevance within the national industrial landscape. Once determined the effective composition of Italian control pyramids, I try to verify whether (i) internal capital markets do exist and the extent to which they work actively and efficiently; (ii) group affiliation facilitates member firms in terms of performance, capital structure choices and financial outcomes in both good and bad times.

The thesis consists of three chapters.

The **first chapter** reviews and systematizes the extant literature on business groups, with the aim of identifying avenues for future research through survey of past scholarship.

The **second chapter** investigates how an exogenous shock affects capital reallocation among firms affiliated to business groups and their subsequent investment decisions. We use unique financial and accounting micro-data which allow us to have a deep knowledge of the ownership links between member firms. Thus, we reconstruct almost all Italian business groups as hierarchies. Our sample period encompasses the global 2008 financial crisis, a natural event which is

likely to exacerbate external financial constraints and, consequently, the impact of internal capital markets on funds distribution. In particular, we test whether intra-group transfers provide BG-affiliated firms with a substantial financing advantage when compared to their (similarly constrained) standalone peers.

Finally, the **third chapter** extends evidence collected in the second essay and compares a cohort of affiliated firms with a cohort of comparable independent ones to measure the potential advantage group members may have vis-à-vis independent ones in performance outcomes during times of market turmoil.

Business groups: a multidisciplinary review and research agenda

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ABSTRACT

Business groups are a popular research topic for scholars in multiple disciplines. Despite a wealth of research, gaps and contradictory findings are prevalent due to the fragmentation of previous studies. Additionally, the scope of work in this area has actually narrowed over time. Our review addresses these problems through a structured content analysis that is used to develop an integrative framework that synthesizes what we know to date about this topic, and the important theoretical and methodological challenges which lie ahead.

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1. Introduction

Business groups are a widely used organizational form, and can be found in both mature and emerging economies. This topic has seen decades of study, with a substantial jump in activity in recent years. Following Granovetter's (1994) seminal review, business group research has grown not only in volume, but also in the wealth of disciplines. Integrating this research is challenging: key definitions vary across studies, and findings often yield mixed and inconsistent results.

The use of theoretical perspectives, related variables, and even regions of interest also vary widely across articles, making it even more difficult to assemble a coherent understanding. For example, one of the most basic questions is whether business groups are generally beneficial or undesirable. On one hand, group affiliation can provide access to resources, and key coordination and control mechanisms (e.g. Caves, 1989; Guillen, 2000; Leff, 1978). Alternately, agency theory logic emphasizes the potential downside of self-dealing and the abuse of minority investors (e.g. Bae et al., 2002). Despite years of research, this fundamental question has no clear answer (e.g., Khanna and Rivkin, 2001; Khanna and Yafeh, 2007; Carney et al., 2011).

As such, a comprehensive synthesis and the development of an integrative framework on this review topic would be of interest to a broad range of scholars. While previous review papers contributed significantly to advance our knowledge, they either have a very specific focus (e.g., Yiu et al., 2007) or are based on early studies on groups (e.g., Granovetter, 1994).

Among more recent works, Colli and Colpan (2016) systematize the abundant and fragmented knowledge on the corporate governance of business groups, suggesting four pathways for critical future research. More specifically, authors urge a more comprehensive approach to business groups that embraces and recognizes the variegated nuances of the topic (ranging from the performance consequences of certain ownership arrangements to the role and functioning of boards). In a similar vein, Holmes et al. (2018) survey business group research across countries but highlight specific implications for international strategy scholars.

We aim at complementing those reviews by broadening the scope of the analysis in order to include new tentative solutions to solve the theoretical and empirical ambiguities identified by the extant literature so far. To reach this goal, we did a comprehensive review to identify papers on business groups published in leading journals from various disciplines in the period 1989-2018. We content analyzed all papers selected by coding information on key elements (e.g. article and data type, method, theoretical perspective, market setting).

By presenting an integrative framework combining different streams of research, this paper provides several contributions to knowledge on business groups. First, it identifies research avenues to advance our theoretical understanding of business groups on several dimensions. Second, it underlines methodological shortcomings implicit in previous studies and provides indications on how to address them to develop more rigorous empirical insights. Finally, it provides new avenues for empirical research on business groups by highlighting the importance to better investigate the ties connecting group companies or the governance mechanisms presiding the internal allocation of resources.

2. Definition and typologies of groups

While there has been an increasing investigation on business groups (Khanna and Palepu, 1997; Cheong et al., 2010), a comparison of studies across different settings is difficult due to the fragmentation of the existing literature. This fragmentation is caused both by the diversity of definitions used to clarify what a business group is and by the variety of organizational forms in which a business group can be structured.

In the economic and management literatures, business groups are commonly defined on the basis of ownership ties (Almeida and Wolfenzon 2006; Feenstra et al. 2003). From this perspective a business group is a hierarchical organization structure made of individual firms gathered together through equity ties. Such a definition is particularly useful for delimiting the boundaries of these structures with certainty, but entails the risk of not considering organizational forms that, despite having different formal characteristics, are identical to business groups in a material respect.

For this reason, some scholars adopt a broader definition of business groups by defining them as “sets of legally independent firms bound together in persistent formal and/or informal ways” (Granovetter, 1995; Goto, 1982), or as “networked organizations with multiple ties among individual affiliate members that are accustomed to taking coordinated action (Khanna and Rivkin, 2001) and internally share resources such as personnel, capital, and knowledge” (Bertrand et al., 2002; Douma et al., 2006). Such broad definitions are more representative of group affiliation than narrow equity-centered ones but, at the same time, they make the borders of groups more uncertain.

Business groups are difficult to define from a theoretical standpoint also because various organizational forms with different characteristics may be included among business group. In other words, under the label of business groups, scholars include a variety of organizational forms (Khanna and Yafeh, 2007), each of which being emblematic of a specific national business system. As noted in the literature, the characteristics of these different forms are the result of the economic, political and legal national conditions.

Literature provides a deep descriptions of the characteristics of business groups across a number of countries. For example, Japanese keiretsus are characterized by multiple corporate owners, often centered on a lead bank, and may consist of both horizontal or vertically integrated companies (e.g. Goto, 1982). Korean chaebols are characterized by private family ownership with limited bank involvement (Gedajlovic and Shapiro, 2002) and a structure consisting of multiple member firms linked through vertical integration of inputs and outputs (Chang and Hong, 2000). Oligarchies in Russia are individual companies linked by common ownership concentrated in the hands of wealthy individuals that share commercial and financial relationships, as well as social and political ties (Estrin et al., 2009).

In Western Europe pyramids, chain of ownership relations in which the top family directly controls a firm, which in turn controls another firm, which might itself control another firm, and so on (La Porta et al., 1999; Almeida and Wolfenzon, 2006; Almeida et al. 2011), are often used in combination with cross-holdings and dual-class share structures to enable the controlling shareholder to maintain control over a large group of companies (Faccio and Stolin, 2006).

In Taiwan, *guanxi qiye* focus on partnership relations among individual or family investors that jointly control business operations

and are more closely managed as a strategy network (Yu et al., 2007). In India “business houses”, financial and organizational linkages among affiliated enterprises are emphasized by multiple forms of ties among group members such as strong social ties of family, caste, religion, language, ethnicity and region (Encarnation,1989). Family ties also characterize grupos economicos in Latin America where often several families (unlike business groups from other countries) own and control a large collection of firms (Sargent, 2005).

Overall, what all such organizational forms have in common is the fact that affiliates have institutionalized relationships with each other and work coherently as a system (Powell, 1990) managed by a core entity that may be either a family group, an individual entrepreneur, a financial investor such as a bank or a financial institution, or a state-owned enterprise. Furthermore, the presence of the core entity differentiates a business group from a horizontal type of network in which no network member is subject to the dominant control of other member firms in the group (Yu et al., 2007).

3. Method

3.1 Selection of journals and papers

In order to gain a comprehensive understanding of the existing studies on business groups, we performed a systematic assessment of the literature. Given the large body of works on the topic, spanning almost four decades, we tried to balance scope versus manageability by limiting our review to the top outlets in various disciplines, i.e. management, finance, international business and sociology (see Table 1).

Multiple scholarly search engines – i.e. business source ultimate, JSTOR, ABI/Inform – were used to select qualifying

abstracts. We searched for all publications including the following keywords: “business group*”, “pyramidal group*”, “pyramidal ownership”, “corporate group*” or “horizontal group*”. This process led to identify 504 potential articles on business groups.

After a careful reading and screening of all potential articles, we finalized a resulting sample consisting of 117 articles published in the selected journals between 1989 (first paper published) and 2018. The large difference between the initial selection and the final sample can be explained by considering that a number of articles were duplicates, book reviews, business news, and so on.

3.2 Content analysis

A standardized, multi-step coding scheme was designed to systematize and analyze content collected from the articles selected. We compiled a list of eligible studies (i.e. meeting inclusion criteria) and we entered all relevant information into a detailed table of evidence. For each paper chosen, we coded information such as: (1) article type (review, conceptual or empirical), (2) data type (cross-sectional or longitudinal), (3) data analysis (qualitative, quantitative, mixed method, or experiment), (4) theoretical perspective (agency-, transaction costs-, resource-, institution-based or others), and (5) market setting (developed, emerging or transition economies).

The content analysis was performed by two coders to ensure and enhance the reliability of the study (Coffey and Atkinson, 1996). The coding scheme was initially used to analyze a sub-sample of 20 articles in order to pre-test its validity. After this initial assessment, the two coders met to reach an agreement about the set of items to use in the analysis of each element of the paper. Next, they went carefully

through all articles with the aim of discerning relevant thematic patterns.

All journal papers were scrutinized by both coders. At the end of the coding process, they met to match the two set of results and to analyze cases of divergence. There was a high overlap among the two set of results as only 4 out of 117 items show a divergence of coding. We calculated inter-rater reliability scores to assess the level of agreement among coders; both percent of agreement and Cohen Kappa were above acceptable thresholds (Dewey, 1983). Any discrepancies across codes were discussed by the two coders with the aim of finding an agreement on the final coding.

A subject-matter approach was used to understand how scholarship and knowledge on business groups have been organized so far. Tracking how many times a certain topic was addressed in past research, we were able to find recurring themes in prior literature and to identify potential gaps.

Each study was then surveyed to disentangle possible correlations between different variables of interest. Since the majority of sample papers investigate BG-related variables as either predictor or mediating-moderating variables, we made this distinction a guiding principle for the whole of our review. We present a graphic framework for this approach in Figure 1.

4. Results

The temporal distribution of the 117 papers (see Figure 2) shows that business groups began to receive scholarly attention at the end of the 1980s. Since then, an extensive body of literature has been growing in this area, with peaks occurred in the last ten years. We observe a sharp decline in the prevalence of conceptual/theory

building articles over time and a growing emphasis on purely quantitative research designs (see Figure 3).

A wide span of theoretical perspectives is quoted in the selected literature (see Figure 4). A quarter of the papers under scrutiny adopt agency theory as a framework to investigate phenomena associated to business group structures, ranging from tunneling (Bae et al. 2002; Baek et al, 2006; Siegel and Choudhury, 2012) to internal capital markets (Gopalan et al., 2007; Buchuck et al., 2014), from firm performance (Kang et al., 2017) to innovation (Belenzon and Berkovitz, 2010). Half of the studies based on agency models integrate the picture with elements of other theories such as the institution- (Chung and Luo, 2008) or the resource-based view (Purkayastha et al., 2018).

Institutional theory results to be the most utilized theoretical lens for the study of business groups, given that around 40 percent of the papers included in our review use insights from the institutional perspective for exploring this organizational form. The largest share of these works investigate whether country-level specificities in context-related factors may explain persistent performance differences between firms that are organized through group structures and firms that are not (Yiu et al., 2005; Estrin et al., 2009).

Other common theoretical frames include transaction cost economics (Collin, 1998; Hoskisson et al., 2005; Rocha, 2012), network theory (Gerlach, 1992; Chung, 2006), contingency theory (Mahmood et al., 2017; Singh et al., 2017) and the resource-based view of the firm (Guillén, 2000, Yiu et al., 2005). However, the overall contribution of these theories to the acquisition of knowledge on business groups is still very limited.

In addition, the number of multi-theoretic studies is quite small. To date only 25 per cent of the articles have combined two (Jin and Park, 2015) or more (Chung, 2001; Douma et al., 2006; Choi et al., 2013) theoretical paradigms, but the proportion has been increasing over time.

In terms of geographical coverage (see Figure 5), the largest part (around 70 percent) of the sample focuses on the study of business groups in developing countries. Indeed, despite the widespread presence of groups worldwide, little evidence has been collected on mature economies, with a few exceptions for US (Williamson and Verdin, 1992), France (Boutin et al., 2013), Sweden (Jansson and Larsson-Olaison, 2015) and Italy (Volpin, 2002).

Recent research also neglects multi-market comparative studies. Just a couple of papers explore characteristics of business groups across countries with different levels of institutional development. For example, Masulis et al. (2011) investigate how the motivations for family-controlled business groups change across economically advanced and emerging nations. They find that family groups are predominantly diffused in markets with limited availability of investment capital and lax fiscal rules on intra-firm transactions. In a similar vein, Chacar and Vissa (2005) use data from US and India to test whether market infrastructures at different levels of development lead to differences in performance persistence among companies affiliated to a corporate group.

Regarding research subjects, topic coverage varies substantially across time. To detect this thematic heterogeneity, we group the papers according to the type of outcome they explore and we synthesize results in Figure 7.

A disproportionate amount of research addresses performance outcomes, but the business groups-performance link is still an open debate. Since performance is a multifaceted construct, we try to capture all the different ways used to proxy it in the selected literature (see Figure 8).

Almost all the studies measure the performance effects of business group affiliation using either accounting (e.g. ROA, ROE, ROS,) or stock market indicators (e.g. Tobin's q), albeit with a difference in relative usage across fields. Conversely, the non-financial performance of business groups remains basically unexplored (an exemption is Choi et al., 2013). While there is abundant empirical work on the relationship between business groups and corporate strategic choices such as diversification (Chakrabarti, 2007), internationalization (Guillen, 2002) or foreign direct investments (Chari, 2013), a limited body of research has investigated the role of group membership on firm innovativeness. Among the few, Chang et al. (2006) find that affiliates are, on average, more innovative than their independent peers, even though the benefits of group affiliation tend to decline as the institutional infrastructures for promoting innovation improve.

According to our conceptual frame (Figure 1), group affiliation intervenes on variegated outcomes either as a predicting (among others, Estrin et al., 2009) or mediating/moderating variable (Lu and Yao, 2006; Gaur and Kumar, 2009; Kim et al., 2010; Ramaswamy et al., 2012). In order to explain the actual role of business groups in the economy this difference is quite relevant indeed: a predictor anticipates the criterion effect (as also the mediator/moderator does) but it is causally antecedent to the mediating/moderating effect. In other words, the causal role of group membership varies according to

its position within the sets of regressors, so does the direction (and the strength) of the relationships between the variables of interest.

Moreover, the greatest part of the papers in our sample identifies group affiliation as a binary choice (i.e., being a group member or not) and attempts to estimate its impact in terms of corporate performance or strategy. However, in doing so, extant literature might fail to consider other, less visible linkage mechanisms concurring to define the real boundaries of the business group, which can in turn determine the positive (or neutral, or negative) sign of the causal path.

While these are all simply basic aspects of research to date, identification of these trends is helpful for redirecting the focus of future studies.

5. Discussion

5.1 Opportunities for theory development

In addition to synthesizing prior research, our review article will develop a roadmap for future studies. We will identify a number of research opportunities that can advance theory, including some testable propositions. Based on the content analysis to date, we present some examples of opportunities for theory development.

Institutional entrepreneurship. Previous studies argue that national institutions affect the efficiency of alternative organizational forms, and propose that business groups are particularly beneficial when institutions are relatively underdeveloped (e.g. Khanna and Rivkin, 2001; Leff, 1978). Consistently, empirical studies tested differences of performance between affiliated and independent firms in emerging economies, before and during institutional transitions. However, the institution-based view (Peng, 2002) suggests that

companies can generate influence-based rents by influencing the institutional environment: either by avoiding, reducing or circumventing the effects of some institutions, or by influencing and manipulating the institutions to eliminate their potential negative effects (Ahuja and Yayavaran, 2011). Building on this theory, scholars may better understand whether groups will try to keep their benefits by both delaying or defanging the development of new institutions, and subverting, starving or undermining their legitimacy in the national context. Business groups may also be interpreted as social entrepreneurs, i.e. actors that use their resources to modify current – or to create new – institutions in order to pursue their own interests (Maguire et al., 2004).

Building on this view, scholars may explore if and how business groups develop lobbying activities with political parties or national governments, or media campaigns to influence the public opinion, to oppose or slow down radical changes aimed at reducing their benefits. These actions can be very profitable in the short term and may allow groups to gain the time necessary to change their strategy and structure if it is not possible to avoid the transition to more developed and efficient institutions (Morck et al., 2005).

Entrepreneurial teams. Literature traditionally identifies business groups with large and diversified businesses, and most of the empirical analysis focuses on large firms (e.g. Goto, 1982; Khanna and Palepu, 2000b). However, business groups are relatively common also among small and medium companies (SMEs), especially during expansion (Iacobucci, 2002). This happens because some entrepreneurs prefer to start a new company instead of growing their assets within the same legal entity. From a managerial perspective, it would be particularly interesting to explore why entrepreneurs create a

new company when they enter into a new business instead of developing a division within the existing firm. Some intriguing hypotheses are that setting up a new company can provide better incentives to managers or entrepreneurs managing the new business (Gross, 1998; Iacobucci and Rosa, 2008), facilitate the development of a different company culture or allow more flexible contractual relationships with the stakeholders (Iacobucci, 2002). This issue is highly relevant also for large companies that should decide either to spin off or to develop internally a new venture (Khanna and Yafeh, 2007).

Social identity theory. The role of board of directors of affiliated companies is highly critical as they usually receive directives to pursue group objectives, but they are legally responsible to promote their company's interests (Hadden, 1984). It follows that a promising area of research should regard investigating directors' motivations within groups. Building on agency theory, scholars could analyze their economic incentives in term of compensation and ownership (Shen, 2005). Alternatively, they can explore the identity and the social identity of directors in order to understand their degree of identification with the organization (Hillman et al., 2008). In the case of affiliated firms, the presence of multiple ties can determine directors' multiple identities and relatedly also conflicting objectives.

Future studies should so explore if and how the level of identification with the organization or their role as director – vs. their identification with external organizations or constituents – affects board effectiveness and, through it also, firm outcomes and performance. Finally, scholars could also investigate if the degree of identification with the organization changes in different groups (e.g.

groups owned by a family or the state, groups tied together by equity, contractual or social relationships, and so on).

Testing new theories. Future studies should broaden the theoretical perspectives used in the investigation of business groups. They may, for example, either test competing hypotheses based on different theories, or combine two or more theoretical lenses to better explore the complexity implicit in the empirical analysis of business groups. To this purpose, it may be particularly profitable to use a multi-disciplinary approach as theories and methods developed within each discipline can bring light to different types and issues.

So, for example, sociology can help scholars to explore in more depth the role and effects of social ties keeping companies together (Gerlach, 1992) or also the social pressures promoting organizational isomorphism (Orrù et al., 1991). Strategic management may help to investigate how the central actor supports affiliated firms' value creation or how group strategic decision making affects affiliated firms' competitive advantage and performance (e.g. Goold and Campbell, 2002).

In sum, the theoretical and disciplinary eclectism may contribute to disentangle the variety of business groups, their antecedents and their consequences on firms' outcomes and performance.

5.2 Methodological rigor

A good review should also identify methodological shortcomings implicit in previous studies and provide insights on how to improve the best practices. Examples of shortcomings affecting empirical studies on business groups are presented in the following points.

Endogeneity issues. Previous studies assume a stable group structure over time, i.e. affiliated companies belong to business groups for a long time period (Khanna and Rivkin, 2001). However, controlling shareholders – or top managers of the holding company – can be tempted to keep the control (or to strengthen the ties) of very profitable companies and to sell (or to weaken the ties in) companies with financial or operational problems. As business groups can change the number of affiliated companies and/or the strength of the ties with each of them based on future economic perspectives, future studies should examine the dynamics of business groups over the time. The study of the simultaneous relationships between group shareholding and affiliated firms' performance can allow scholars to test for the presence of endogeneity effects (Chang, 2003).

Operationalization of business groups. Not all countries and legislations devote attention to define, regulate and measure the economic relevance of business groups, as the core economic unit is usually the individual firm (Encaoua and Jacquemin, 1982; Granovetter, 1994). As a result, previous studies have explored the business group effect in countries where official statistics and databases were available. Despite some advantages (e.g. easy of operationalizing business groups), this choice has also some limits. First, official statistics can have proper goals that lead them to adopt ad-hoc definitions of business groups (Yiu et al., 2007). Second, most studies tend to analyze the most visible part of groups, e.g. few large and/or listed affiliated companies, so ignoring sections of the group structure. Future studies should try to better circumscribe groups borders as to develop a more integrated understanding of the economic consequences of group affiliation.

Richer analysis of the institutional context. The dominant theoretical framework explaining the diffusion of business groups in emerging economies suggests that they fill national institutional voids (Khanna and Rivkin, 2001; Leff, 1978). While this approach produced several interesting results, future studies should develop a finer-grained analysis of the impact of national institutions.

Moving in this direction, Carney et al. (2011) test the moderating effect of three types of institutions (i.e. financial, legal and human resource) on firm affiliated performance. Scholars should also further explore the impact of institutional reforms on business group effect (Lamin, 2013) as the empirical evidence is contradictory. For example, while Hoskisson et al. (2005) show that business groups tend to refocus in order to reduce organizational costs, Chung and Luo (2005) indicate that they enter into new industries and exit from others, with a positive net effect on diversification. From this perspective, it would be interesting to empirically assess which is the impact of institutional transitions on both groups' strategy and structure (e.g. Hoskisson et al., 2004), and on the short-term and long-term affiliated firms' performance (e.g. Khanna and Palepu, 2000a; Zattoni et al., 2009).

Business group versus affiliated companies. Most of previous studies theorize the existence of a positive group effect. On the other hand, the empirical studies have largely focused on comparing affiliated companies and independent firms' outcomes and performance. This mismatch between theory building (at group level) and hypotheses testing (at firm level) – probably due to difficulties in data collection (Carney et al., 2011) – represents a methodological issue to address. Future studies are so invited to either theorizing

causal effects at the affiliated firm-level, or testing complete group-level data for a number of business groups.

Qualitative method. Previous studies on business groups are more and more aimed at testing hypotheses about the group effect on affiliated firm outcomes or performance. Our data indicates that only few studies adopts a qualitative or a mixed method and that there is a clear trend towards quantitative methods in recent studies. As most of the unresolved questions about business groups centers on going beyond simple input-output models and opening the black box of decision making within groups (e.g. how the strategic decision making process unfolds within groups, how business groups allocate internal resources, and so on), scholars should adopt richer and more contextualized methods that are particularly useful for both exploring new phenomena and developing new propositions (e.g. Bluhm et al., 2011; McNulty et al., 2013).

5.3 Empirical directions for future research

Despite an increasing number of empirical studies, some reviews and meta-analysis, there are still several possibilities to extend our knowledge on business groups. Here we highlight some avenues for future empirical research.

The role of different ties. Business groups are set of legally independent companies bound together by different ties, e.g. ownership, market or personal ties. Previous studies tend to ignore the potential implications of different ties, and consider them as the glue that keep together the affiliated firms belonging to a group (Khanna and Rivkin, 2006). As advanced by Chung and Luo (2005: 405), “different types of ties are likely to play a different role in business groups and have different effects on group performance”.

While they analyzed different types of personal relationships (i.e. within the family or the inner circle), we argue that the relevance and the impact of these ties can differ among them (e.g. equity links can have stronger effects than contractual and personal ones). Future studies should further develop our knowledge on the characteristics and on the consequences of different and multiple ties on affiliated firms' and business groups' outcomes and performance.

Business groups in developed economies. Most of the past studies have explored the business group effect in emerging economies, and have increasingly ignored groups in developed economies (see figures 5 and 7). A notable exemption is Colpan and Hikino (2018): adopting an internationally comparative approach, authors argue that advanced economy business groups emerged in response to a changing industrial landscape in the second half of the nineteenth century and provided entrepreneurs with a flexible, adaptable organizational form capable of co-evolving with the economic context over the years.

As business groups are very common also in several European countries like France (Encaoua and Jacquemin, 1982), Italy (Zattoni, 1999), Belgium (Wymeersch, 1994), it would be interesting to analyze if the performance of business groups exceeds independent companies in developed and mature institutional contexts. In addition, it would be worth to understand if the affiliation to business groups can produce different economic benefits in such empirical contexts (e.g. market power, economies of scale or scope).

Alternatively, scholars may explore if in these countries the affiliation to business groups can produce more negative than positive consequences, but in this case scholars need also to explain the reasons behind their persistence over time. Finally, future studies may

also investigate why business groups in the U.S. and the U.K. totally control their subsidiaries, while groups in common-law countries like Canada and Australia may also partially control them (Hadden, 1993).

Fit between country institutions and business groups. There is a common conviction that business groups arise and diffuse for different reasons in different national institutional contexts (Khanna and Yafeh, 2007). Despite some partial support for a positive business group effect within emerging economies, the results are collectively mixed and not definitive (Khanna and Rivkin, 2001). To advance our knowledge, future studies should try to explore which types of institutional voids (e.g. financial, legal, human capital) and how (e.g. which resources are shared, which coordinating mechanisms are at play) business group fill in each national context (e.g. Carney et al., 2011).

Scholars are also invited to explore when and how the institutional reforms promoted by the local governments challenge the business group effect and how they react to resist to these changes (e.g. they refocus on the core business by selling marginal companies, they reduce coordination costs, they enter into new markets, etc.). For example, Luo and Chung (2005) show that market reforms strengthen the contribution of family ties, while common-identity ties do not have a significant effect. A recent study (Lamin, 2013) shows that business groups both provide affiliated companies with a rich information flow on new clients or markets, and promote their products or services to potential customers. This study shows, also, that the business group positive effect does not only persist, but is even more intense after deregulation and the entrance of new competitors. As such, this study encourages scholars to adopt new

theoretical perspectives in order to explore neglected potential benefits associated with group membership.

The role of internal and external governance mechanisms. As business groups can be used either to increase the efficiency and the returns of affiliated companies, or to expropriate their minority shareholders, future studies should devote more attention to investigate the role of internal and external governance mechanisms. Among internal mechanisms, the board of directors is of primary importance as board members of parent and affiliated companies are responsible for strategic decision making and for monitoring the company's interests (Zahra and Pearce, 1989). In addition, the role of incentives may also be critical as they can align top managers with companies' or group's interests (Shen, 2005). Among external governance mechanisms, the country's institutional environment can play an influential role as, for example, investors protection or corporate disclosure can inhibit or reduce misappropriation of outside investors by corporate insiders (Chang, 2003).

6. Conclusions

In this paper we surveyed business group research published in leading journals so far. The review organizes and synthesizes the current knowledge on the topic, highlighting potential gaps (in the theory, method, focus of analysis) and elaborating recommendations for future research.

We acknowledge that our review suffers of some limitations. First, we did a comprehensive analysis of top journals in various disciplines. While we think our choice allowed us to analyze a large sample of selected publications, a number of articles on business groups may have been published also in less reputed journals. Second,

we focused our attention on journal papers while we did not directly analyze books or news on business groups.

In sum, despite the above mentioned limitations, we think our article provides a significant contribution to literature on business groups by critically assessing past studies and by emphasizing new avenues for future research.

Table 1: Journal lists for content analysis

Management

Academy of Management Journal
Academy of Management Review
Administrative Science Quarterly
British Journal of Management
Journal of Management
Journal of Management Studies
Management Science
Organization Science
Organization Studies
Strategic Management Journal

Finance

Journal of Corporate Finance
Journal of Finance
Journal of Financial Economics
Review of Financial Studies

International Business

Asia Pacific Journal of Management
Corporate Governance: An International Review
Journal of International Business Studies
Journal of World Business

Sociology

American Journal of Sociology
American Sociological Review

Figure 1

Review Framework

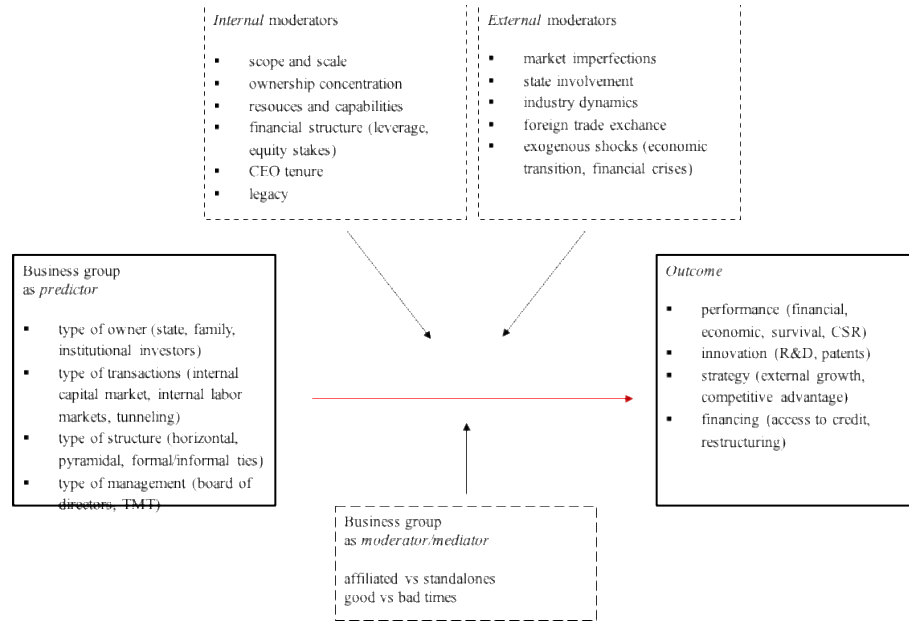


Figure 2

The evolution of the research on business groups

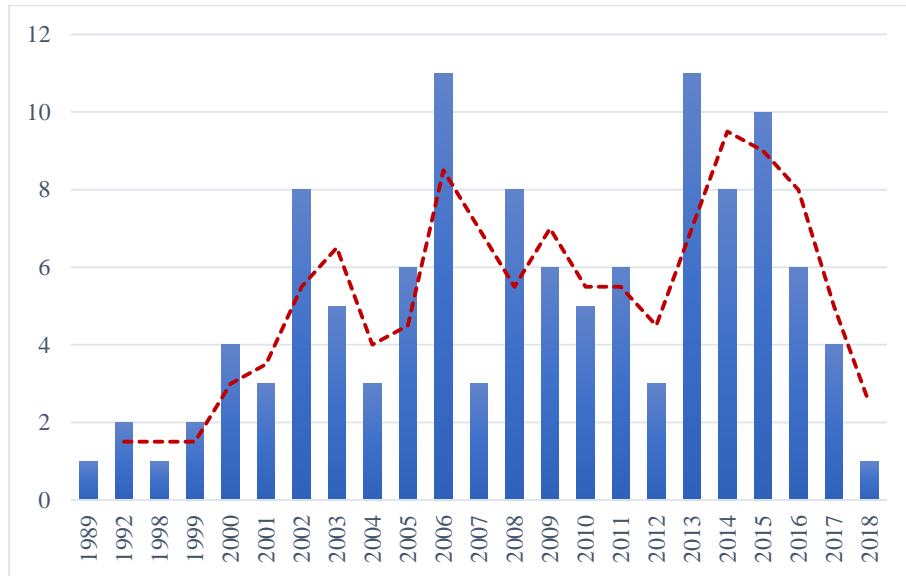


Figure 3

Type of articles

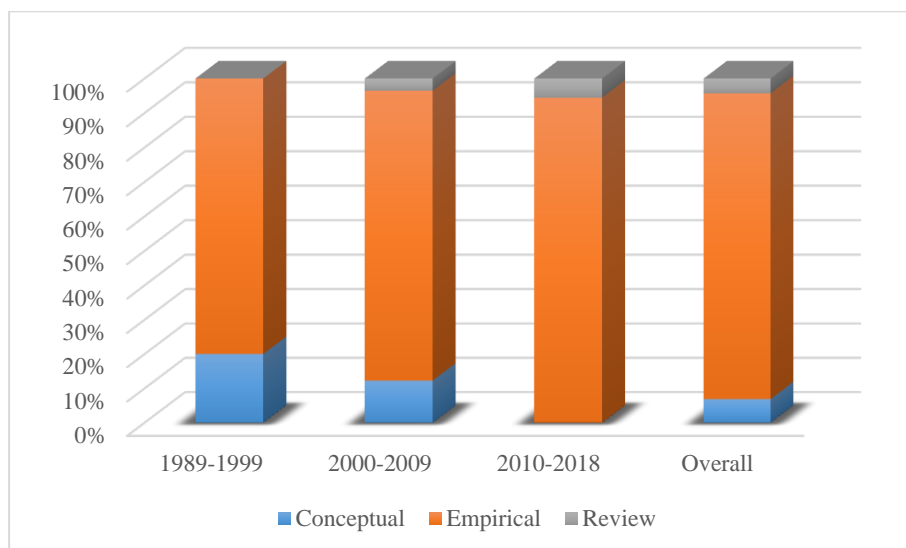


Figure 4

Use of theories

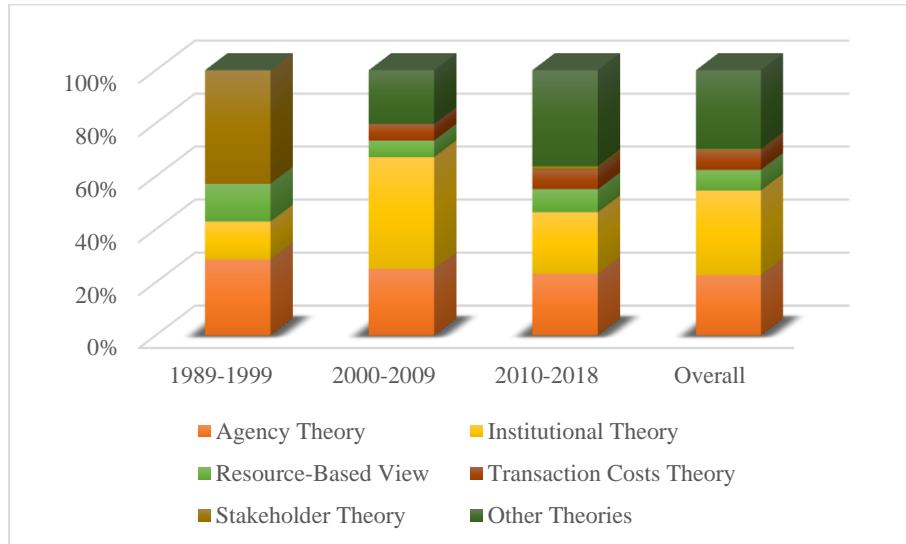


Figure 5

Research setting

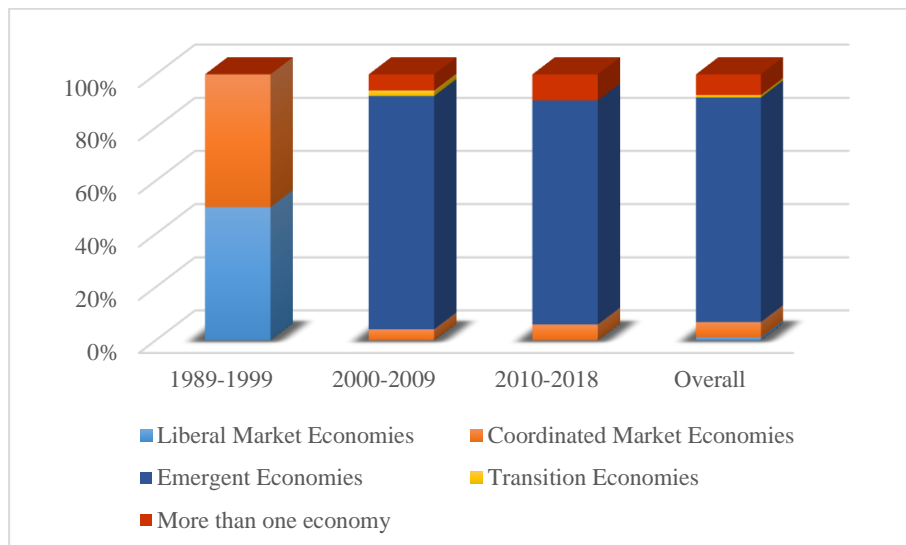
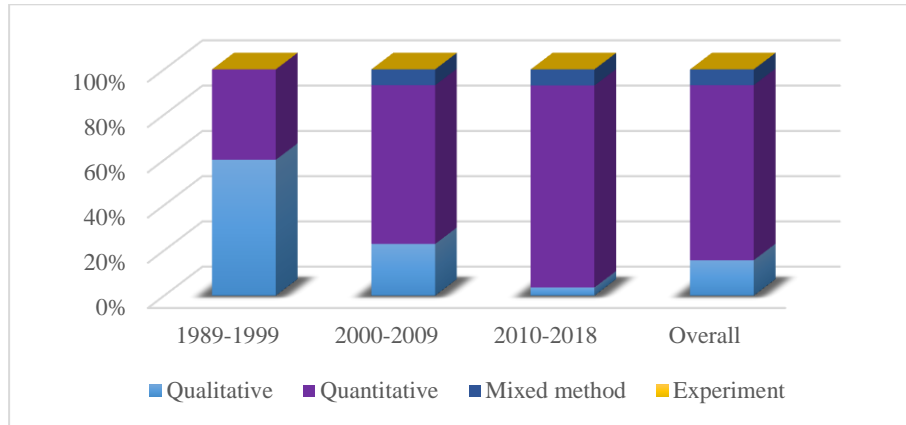


Figure 6

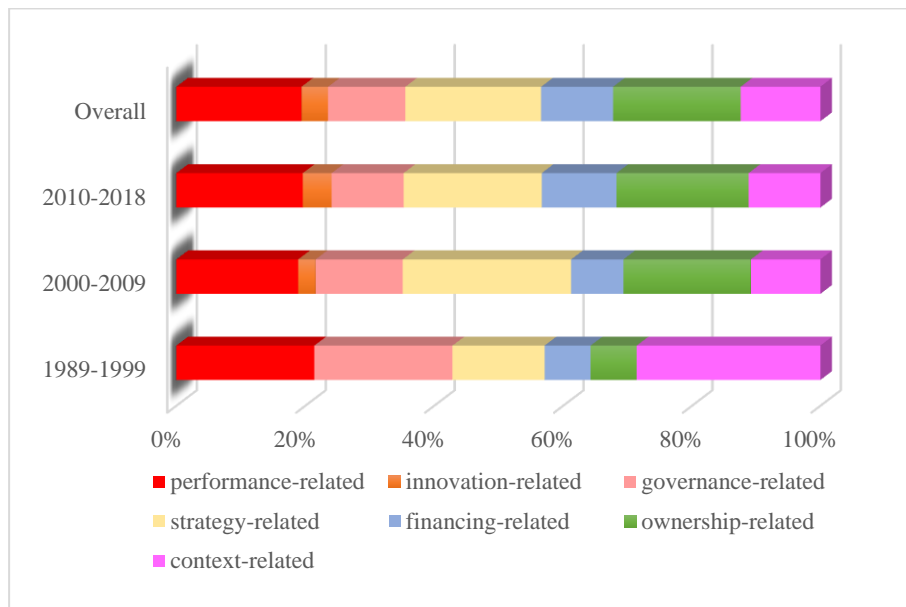
Data analysis (1)



(1) Only empirical studies.

Figure 7

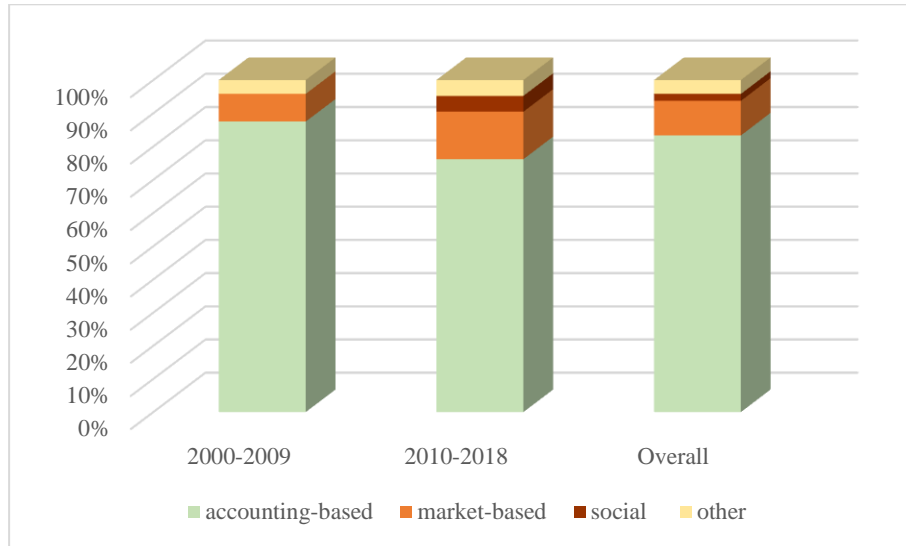
Type of outcome (1)



(1) Only empirical studies.

Figure 8

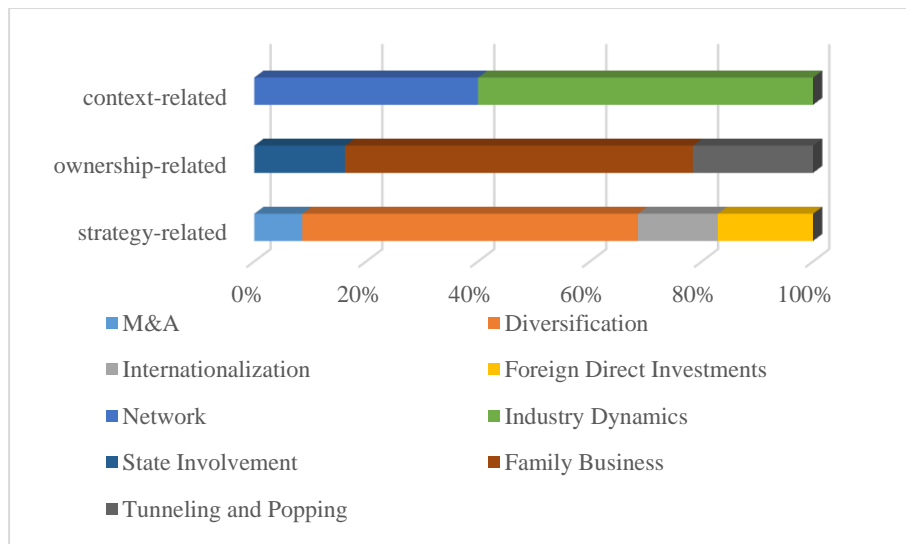
Type of performance metrics (1)



(1) Only empirical studies

Figure 9

Distribution of topics by type of outcome (1)



(1) Only empirical studies.

Internal capital markets in Italian business groups: Evidence from the financial crisis

by Raffaele Santioni¹ and Ilaria Supino²

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.

JEL Classification: G01, G30, G32, G34.

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

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1. Introduction³

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.

³ 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.

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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 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., 2001; Bianchi et al., 2005; Santioni, 2012; Colli and Vasta, 2010, 2015; Colli et al., 2016). Traditionally, big families and government entities have been playing a key role in shaping the ownership structure of Italian groups: the former have dominated the domestic corporate scenario since the fifties, initially benefiting from the supportive role of the state and, later, from a revival of the stock market; the latter have been gradually decreasing their weight in the governance structure of national groups, especially after the wave of privatization started in the nineties (Bonelli, 1982; Brioschi et al., 1990; Borsa, 1992; Battilani and Zamagni, 2010).

Business groups still represent a widely diffused organizational form in Italy. 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).⁴ The second is a firm-level accounting dataset which

⁴ We acknowledge the support of the Cerved Group in providing us with Gruppi Italiani data.

provides comprehensive balance sheet information for the entire universe of Italian limited companies (see Section 3.2).

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.⁵ 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.

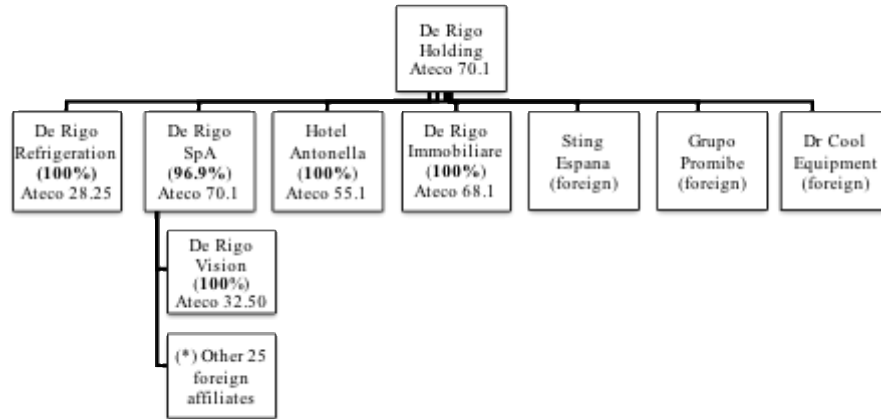
Following the taxonomy defined in Colpan et al. (2010), business groups in our sample are mainly controlled by families and structured as pyramids with a holding company at the top. The presence and persistence of pyramiding in Italy reflects the limited degree of separation between ownership and control that characterizes Italian corporations.

Group firms are held together by multiple ties such as cross-stockholdings, financial relationships and interlocking directorates. Those ties – in differentiating business groups from other organizational forms such as multidivisional companies or strategic networks (Yiu *et al.*, 2007, Colpan et al., 2010) – enable them to perform coordinated actions and achieve mutual goals.

⁵ 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.⁶ 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.

⁶ Financial statements refer to a 12-month period and are deposited each year at the local Chamber of Commerce.

Financials are presented in different formats.⁷ 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 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 2007.⁸ 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).

⁷ 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.

⁸ 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.

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. 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
<u>Firm size (1)</u>				
Micro and small	140,054	804,133	170,101	984,699
Medium and	18,616	3,806,283	18,725	3,891,621
<u>Geographic area</u>				
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
<u>Sector</u>				
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
<u>Unaffiliated</u>				
	Firms	Employees	Firms	Employees
<u>Firm size (1)</u>				
Micro and small	345,102	1,357,320	392,304	1,773,660
Medium and	9,923	1,059,908	9,967	1,148,617
<u>Geographic area</u>				
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
<u>Sector</u>				
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.⁹ 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		
	Firms	Employee s	Employee s	Firms	Employee s	Employee s
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	8,680	1,219,181	140.5	7,043	1,135,020	161.2
Total	158,67	4,610,416	29.1	188,82	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

⁹ 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.

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 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.¹⁰ 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 synthesizes 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

¹⁰ 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.

	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

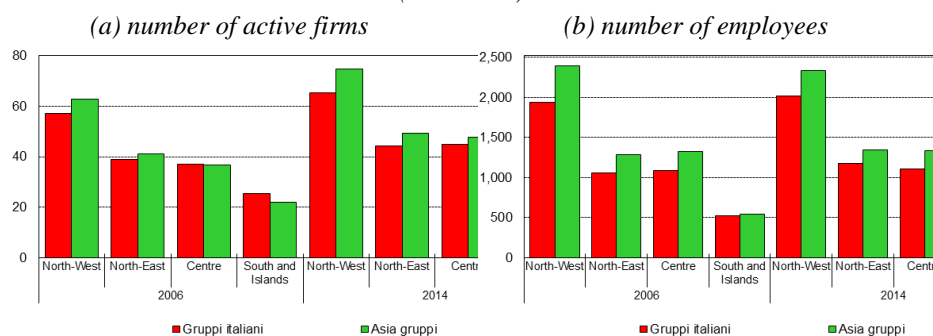
Source: Our processing of Gruppi Italiani, Cerved and ISTAT-Asia Gruppi data.

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.

Figure 2

Data comparison by geographic location

(thousands)

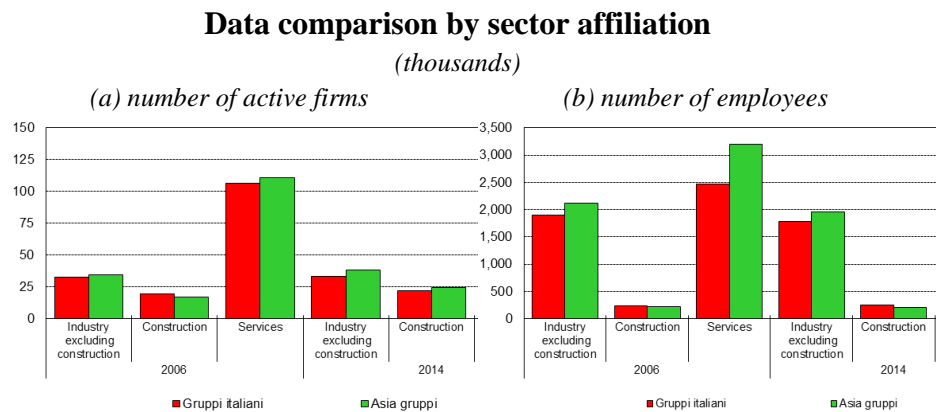


Source: Our processing of Gruppi Italiani, Cerved and ISTAT-Asia Gruppi data.

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



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	23.0	26.6	16.1	22.6
Intra-group financial	11.0	13.2	7.3	10.4
Intra-group trade	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	31.7	41.1	31.3	44.9
Intra-group financial	9.9	15.2	12.6	17.1
Intra-group trade	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	31.6	40.0	31.0	42.4
Intra-group financial	9.9	15.1	12.5	16.6
Intra-group trade	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).

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).

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.

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.

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.

Table 6

Providers and receivers: some features (1)
(thousands of euros and per cent; averages)

Indicator	2006	2014
-----------	------	------

	Net providers	Net receivers	Net providers	Net receivers
Micro and small groups				
NFP towards the group	-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	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	-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	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	-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	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.

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:

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

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	3,136	3,061	4,405	-2,951
-if Net providers	-2,585	-6,798	-3,494	-10,946
-if Net receivers	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.

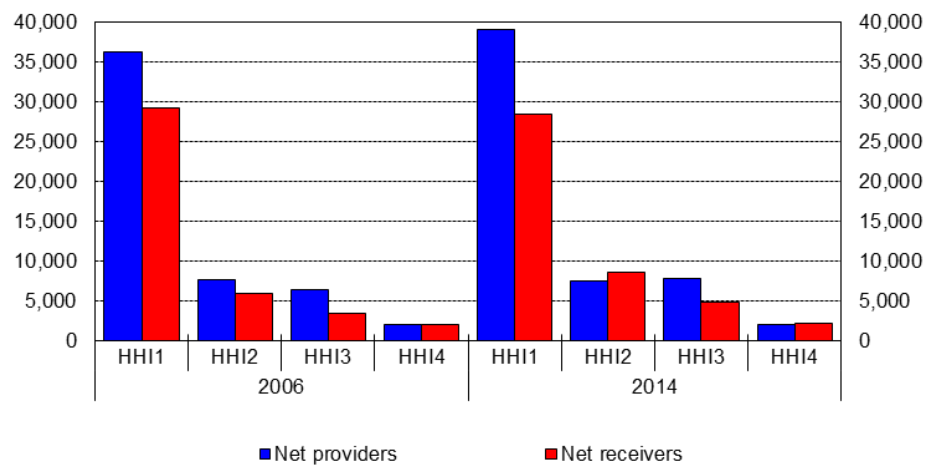
The Herfindahl-Hirschman index (HHI) is then constructed at group level to capture the degree of diversification across industries over the period considered (a higher HHI means that a business group is concentrated in few economic sectors). Figure 4 shows a negative correlation between the net financial 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.¹¹

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.

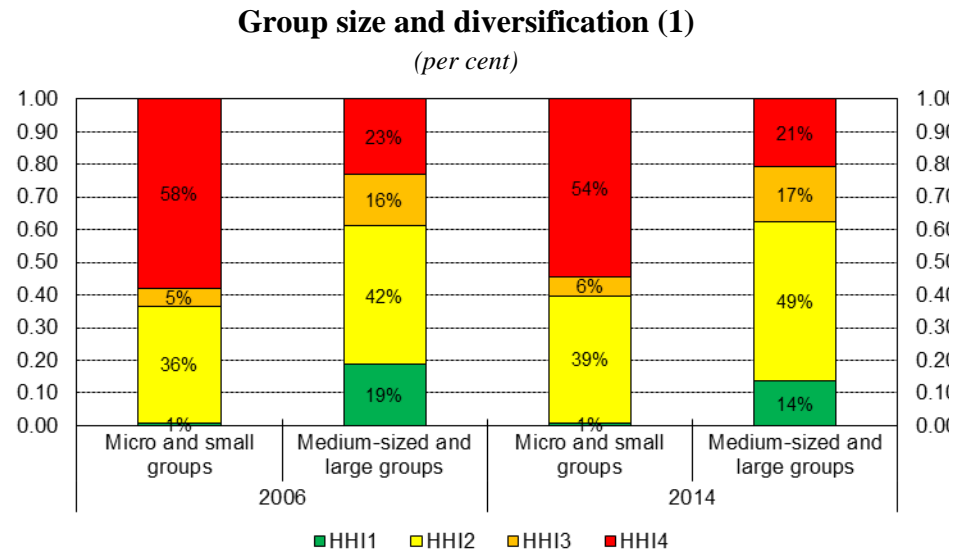
(1) HHI is computed on sales at group level based on 3-digit SIC classification. The HHI can take the following values: $0 \leq \text{HHI1} \leq 0.25$, $0.25 < \text{HHI2} \leq 0.50$, $0.50 < \text{HHI3} \leq 0.75$, $0.75 < \text{HHI4} \leq 1.00$. – (2) Providing firms' net financial position towards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

¹¹ 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.

these percentages are close to zero for members of small groups (first/third column in the figure below).

Figure 5



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: $0 \leq \text{HHI1} \leq 0.25$, $0.25 < \text{HHI2} \leq 0.50$, $0.50 < \text{HHI3} \leq 0.75$, $0.75 < \text{HHI4} \leq 1.00$.

5. 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.

Finally, 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.

Is group-affiliation profitable in developed countries? Evidence from Italy during the financial crisis

by Raffaele Santioni¹ and Ilaria Supino²

ABSTRACT

Drawing on a rich micro-level dataset, we investigate the performance of group-affiliated firms in Italy before and after the financial crisis. We claim that business groups create value for affiliated companies also in presence of well-functioning institutions, and the advantage is even larger when an environmental jolt occurs changing current market conditions. Our findings suggest that group affiliation results in larger profits, greater financial soundness and higher survival rates for firms benefitting from it.

JEL Classification: G01, G30, G32, G34.

Keywords: business groups, performance, financial crisis.

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1. Introduction³

The conventional wisdom tends to locate the phenomenon of business group affiliation in countries at an early stage of development. It is generally believed that business groups owe their ubiquity in emerging countries to the existence of institutional voids (Leff 1978, Khanna e Palepu 1997); in other words, groups emerge as second-best responses to weak institutions underpinning the efficient functioning of the economy.

Yet more recent papers have tried to assess the presence and influence of business groups also in advanced economies such as Spain (Cuervo-Cazurra, 2014), Britain (Jones, 2015), Portugal (Silva *et al.*, 2015), France (Boutin *et al.*, 2013), Sweden (Larsson and Petersson, 2014), and Greece (Avramidis *et al.*, 2017). However, to the best of our knowledge, no systematic evidence exists on Continental European business groups or, at least, not comprehensive as the one provided for Japan's *keiretsu* (Hoshi *et al.*, 1991), Chile's *grupos economicos* (Buchuk *et al.*, 2014) or South Korea's *chaebols* (Almeida *et al.*, 2015).

In particular, very few studies have tested whether group membership is associated to superior performance in countries characterized by well-functioning capital and labor markets. Exception are Buysschaert *et al.* (2008) that find Belgian group-affiliated firms to perform worse than similar independent companies; and Hamelin (2011) who shows a long-term positive performance of firms belonging to small French corporate groupings.

³ 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.

Following this recent strand of literature, we attempt to capture the substantial advantage group members may have vis-à-vis independent ones in boosting performance, differentiating between normal times and environmental jolt events.

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

2.1 Performance and financial structure analysis

In going through the literature in the first chapter, 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 1 we report the results obtained after controlling for firm size.⁴

⁴ See Figure B2 in Appendix B for a breakdown by sector.

Table 1

**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				
<u>Profitability</u>				
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
<u>Financial structure</u>				
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	40.8	44.1	36.7	39.4
Cost of debt	4.4	4.4	3.9	3.2
Medium and large enterprises				
<u>Profitability</u>				
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
<u>Financial structure</u>				
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	47.4	50.9	45.7	48.0
Cost of debt	4.7	4.7	3.5	4.0
Total				
<u>Profitability</u>				
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
<u>Financial structure</u>				
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	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.

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.

2.2 Survival rates

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 2).⁵

⁵ The Altman's Z-score is a measure of the probability of firms' default. The Z-score is a categorical variable computed annually by Cerved Group on each firm included in 'Centrale dei Bilanci' using balance sheet information.

Table 2**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	(a) Affiliated firms				
Safe firms	37%	17%	5%	4%	37%
Solvent firms	11%	32%	11%	7%	38%
Vulnerable	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	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).

3. Empirical analysis

3.1 Data

As described in the second chapter, we construct our dataset by matching two main sources of data. First, we draw detailed information on group membership from Gruppi Italiani, a proprietary database managed by the Cerved Group which supplies data on more than 145,000 Italian groups. Data contained in Gruppi Italiani are collected from several sources including consolidated financial reporting, lists of shareholders, and mandatory disclosures.

Second, we obtain financial variables from the Company Accounts Data System ('Centrale dei Bilanci' in Italian) which gathers yearly balance sheets and income statements for the entire universe of Italian limited companies.

The final sample includes around 160,000 group-affiliated firms and 355,000 independent firms in 2006 (190,000 and 402,271 in 2014, respectively).

3.2 Determinants of firm performance: an assessment

The evidence we collected and reported above supports the idea that firms in groups were more able than standalones in handling the financial crisis and maintaining higher profit margins. Our earlier findings on firm performance can be further tested by assessing whether some firm-level variables act as key determinants of corporate profitability. Accordingly, we identify a set of micro-level covariates on which we regress our chosen proxy of firm profitability,

namely the Return on Assets (ROA) calculated as the ratio of net income to the total value of assets.

Following some previous works (e.g. Ferrando *et al.*, 2015), we test a panel model both statically and dynamically. Panel data considered in the analysis cover the entire sample for the period 2006-2014. Static specifications include Fixed Effects (FE-OLS) and Random Effects (RE-GLS). The dynamic models we consider are Arellano-Bond difference-GMM (DIFF-GMM) and Blundell-Bond system-GMM (SYS-GMM) estimators.

Table 8 presents two static models (columns 1 and 2) in which all predictive variables are assumed to be exogenous and two dynamic models (columns 3 and 4), in which all covariates – except for time dummies – are considered to be endogenous and instrumented with their own lags. In particular, we consider the dynamic model as specified in the following equation:

$$\begin{aligned}
 ROA_{it} = & \beta_1 ROA_{it-1} + \beta_2 ROA_{it-2} + \beta_3 Leverage_{it} \\
 & + \beta_4 Leverage_{it}^2 + \beta_5 Cash\ holding_{it} \\
 & + \beta_6 Cash\ holding_{it}^2 + \beta_7 NWC_{it} + \beta_8 NWC_{it}^2 \quad (1) \\
 & + \beta_9 Sales\ growth_{it} + \beta_{10} Sales\ growth_{it}^2 \\
 & + \gamma Controls_{it} + \theta_t + \varepsilon_{it}
 \end{aligned}$$

where *ROA* is our dependent variable for firm *i* at time *t*, *Leverage* is measured as the ratio of debt to debt plus equity, *Leverage*² is a quadratic function of leverage included to test for nonlinearities, *Cash holding* is the amount of cash and cash equivalents over total assets, *NWC* equals the ratio between net working capital and total assets, *Sales growth* is the rate of growth of sales and represents a proxy for

growth opportunities, *Controls* is a vector of control variables consisting of firm size, measured as the natural log of total assets, industrial affiliation and geographic area. Time dummies are also included.

In all dynamic specifications we test for the existence of nonlinearities in the relationship between all covariates and performance. In particular, this relationship is found to be positive for low levels of *Leverage*, while it becomes negative above a certain threshold of the ratio.⁶ The nonlinearity hypothesis is further supported by the results obtained in static models, where the level of indebtedness has a negative coefficient sign.

All models show a significant and positive link between *Net working capital* and *ROA*. This suggests the significance of liquidity to firm performance, to the extent to which holding liquid assets that can be easily sold off reduces the period for cash conversion and the need for external finance. Likewise, collecting and retaining cash reserves has a positive influence on performance, indicating that cash rich companies are more likely to better sustain expenditures for improving business performance.

Size is positive and statistically significant in all models, with the exception of model 3 in which the coefficient is negative. In principle, bigger firms may rely upon economies of scale and reputational benefits that enable them to earn the highest rates of profit.

In a second step, we add (to static models) a dummy variable *Group*, which takes value 1 if a firm is affiliated to a business group,

⁶ This threshold is calculated by finding the x intercept of a quadratic function. In model 4, for example, it is equal to: $-Leverage/(2*Leverage^2) = -0.0328/[2*(-0.1529)]=0.10726$.

0 otherwise. To expand understanding of the relationships between the variables, we interact *Group* with all other covariates in the model to evaluate how the association between independent variables and outcome vary across different levels of the added dummy.

First, we explore the relationship between the level of indebtedness and group affiliation. The interaction coefficient is significantly positive at the 1% level, a result that may appear counterintuitive but reveals an important difference in the capital structure behavior of group members and independent firms. Indeed, the greater debt capacity of group members may result in investments that promote a firm's ability to generate returns.

Then, we interact group affiliation with firm size. The resulting variable enters the model with a negative sign, suggesting that group membership obscures the positive relation between firm profitability and corporate size. In other words, group membership appears to hold back (rather than support) the performance of larger firms. A possible explanation for this negative effect is that smaller may find harder obtaining financing for growth, thus getting more benefits (compared to larger peers) from business group affiliation.

In sum, the estimated coefficients of the interaction terms in the extended model show that the effect of belonging to a business group on performance is positive for highly indebted, fast-growing and smaller firms.

Table 8

Static and dynamic models: determinants of performance

Variables	[1] FE-OLS	[2] RE-GLS	[3] DIFF-GMM	[4] SYS-GMM
<i>ROA Lag 1</i>			0.2212*** [0.0034]	0.3766*** [0.0036]
<i>ROA Lag 2</i>			0.0131*** [0.0020]	0.0762*** [0.0023]
<i>Leverage</i>	- [0.0004]	-0.0678*** [0.0003]	0.0775*** [0.0037]	0.0328*** [0.0028]
<i>Leverage</i> ²			-0.1593*** [0.0033]	-0.1529*** [0.0029]
<i>Cash holding</i>	0.0776*** [0.0008]	0.0778*** [0.0006]	0.1662*** [0.0045]	0.1524*** [0.0030]
<i>Cash holding</i> ²			-0.0845*** [0.0090]	-0.0878*** [0.0054]
<i>Sales growth</i>	0.0149*** [0.0051]	0.0143*** [0.0051]	0.0267*** [0.0009]	0.0408*** [0.0029]
<i>Sales growth</i> ²			-0.0015 [0.0019]	-0.0060 [0.0080]
<i>Net working</i>	0.0338*** [0.0008]	0.0295*** [0.0006]	0.0706*** [0.0024]	0.0604*** [0.0016]
<i>Net working</i>			-0.0186*** [0.0027]	-0.0266*** [0.0018]
<i>Size</i>	0.0094*** [0.0004]	0.0022*** [0.0001]	-0.0789*** [0.0061]	0.0423*** [0.0031]
<i>Size</i> ²			-0.0000 [0.0004]	-0.0026*** [0.0002]
<i>Constant</i>	0.0241*** [0.0019]	0.0600*** [0.0008]	0.2212*** [0.0034]	-0.1187*** [0.0121]
Year dummies	Yes	Yes	Yes	Yes
R-squared	0.0999	0.0977		
Observations	3,328,806	3,328,806	1,368,357	1,923,226
Breusch-Pagan				
Hausman test		26,826.67***		
Instruments			191	299
Arellano-Bond			-120.29***	-138.84***
Arellano-Bond			-2.50***	-7.52***
Hansen test			24,269.78***	42,729.95***

Source: our processing of *Gruppi Italiani* and *Cerved* data.

Notes: the dependent variable in all models is ROA. All variables are defined in Appendix B.

***, ** and * denote significance at the 1%, 5% and 10% levels. Robust standard errors are reported in square brackets.

Table 9**The role of group affiliation**

Variables	[1] FE-OLS	[2] RE-GLS
<i>Leverage</i>	-0.0878*** [0.000297]	-0.0733*** [0.000316]
<i>Leverage</i> ²		
<i>Cash holding</i>	0.0810*** [0.000616]	0.0796*** [0.000729]
<i>Sales growth</i>	0.0140*** [9.34e-05]	0.0130** [0.00574]
<i>Net working capital</i>	0.0364*** [0.000338]	0.0314*** [0.000795]
<i>Size</i>	1.062*** [0.0145]	0.307*** [0.00919]
<i>Leverage*group</i>	0.0230*** [0.000737]	0.0203*** [0.000762]
<i>Leverage</i> ² *group		
<i>Cash holding*group</i>	-0.0117*** [0.00174]	- [0.00188]
<i>Sales growth*group</i>	0.00515*** [0.000348]	0.00789 [0.00556]
<i>Net working</i>	-0.0104*** [0.000886]	- [0.00107]
<i>Size*group</i>	-0.156*** [0.0322]	-0.146*** [0.00751]
<i>Constant</i>		
Year dummies	Yes	

Source: our processing of *Gruppi Italiani* and *Cerved* data.

Notes: the dependent variable in all models is ROA. All variables are defined in Appendix B.

***, ** and * denote significance at the 1%, 5% and 10% levels. Robust standard errors are reported in square brackets.

4. Conclusions

In this paper we extend the analysis conducted in the second chapter, performing 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.

Our findings challenge the idea that business groups destroy value for their member companies in contexts characterized by strong institutions. We contend that the benefits of group membership increase in presence of unexpected negative events during which the network-like structure of business groups is likely to replace the (just temporarily) impaired institutional infrastructure.

Several lines of further research stem from the above analysis. For instance, it would be interesting to identify and explore the channels – beside the operation of internal capital markets – through which the functioning of business groups may alleviate financial pressures exerted on corporate structures, those channels potentially being vertical integration, transfer prices, or innovative abilities. Another useful exercise would imply to replicate our analysis along different phases of the business cycle to capture whether and how persistent group features are over time.

Appendix A

A1. Definition of corporate scope

Table A1

<i>Firm size</i>	<i>Description</i>
<i>Micro</i>	less than 10 employees and an annual turnover or total assets of up to 2 million EUR
<i>Small</i>	less than 50 workers and an annual turnover or total assets of 2-10 million EUR
<i>Medium</i>	up to 250 employees and an annual turnover of less than 50 million EUR or total assets below 43 million EUR
<i>Large</i>	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

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

<u>Intra-group</u> <i>Net financial position (NFP) toward the group</i>	Intra-group financial payables minus intra-group financial receivables.
<i>Net trade position (NTP) toward the group</i>	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				Total
	Micro	Small	Medium	Large	
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

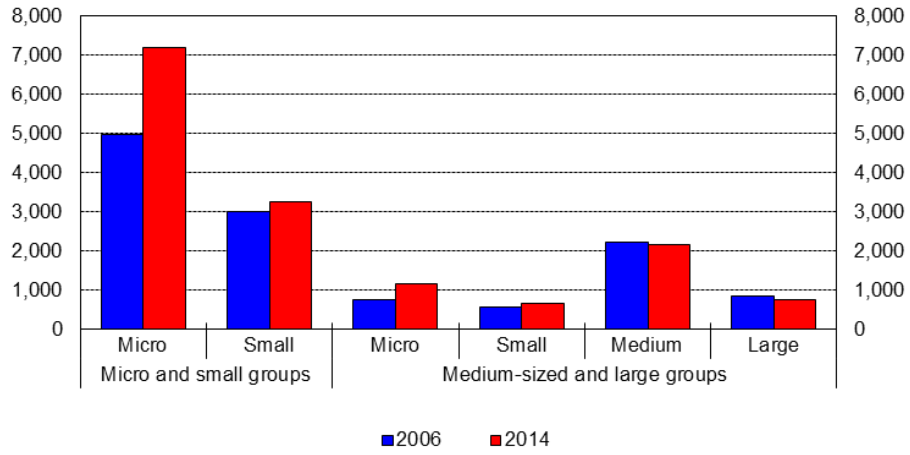
(b) number of employees

Group size	Firm size				Total
	Micro	Small	Medium	Large	
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)

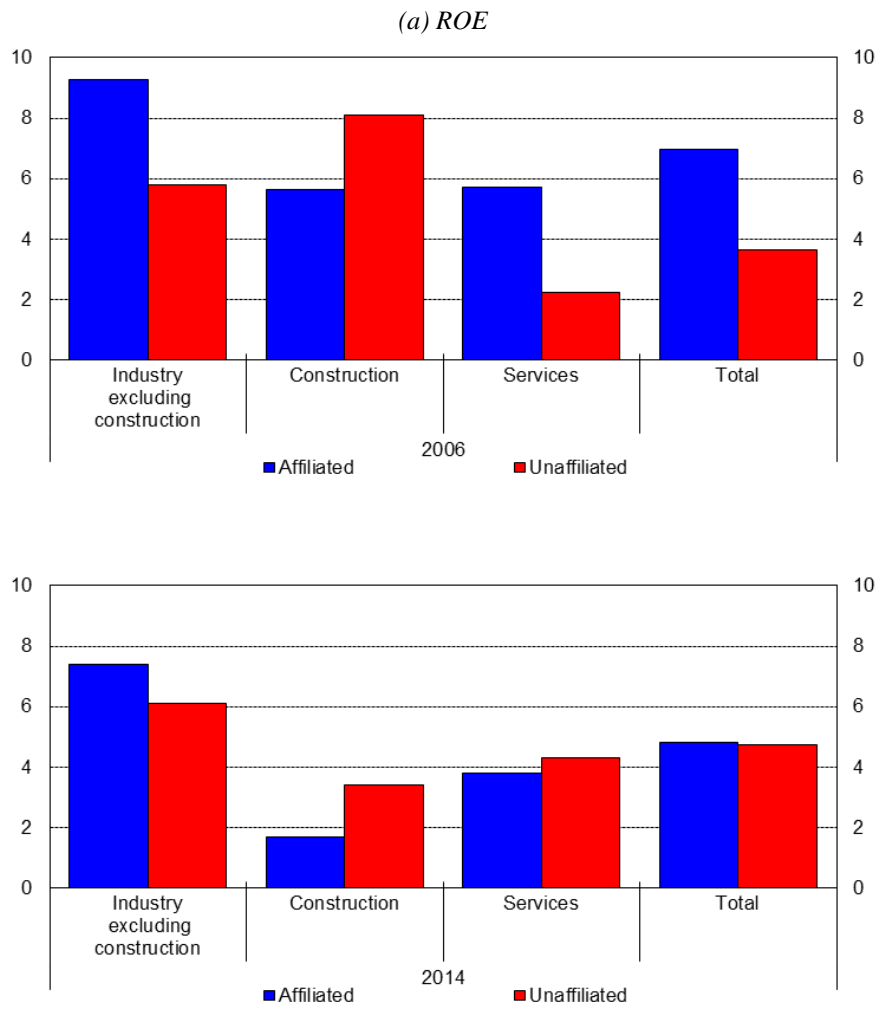


Source: Our processing of Gruppi Italiani and Cerved data.

Figure B2

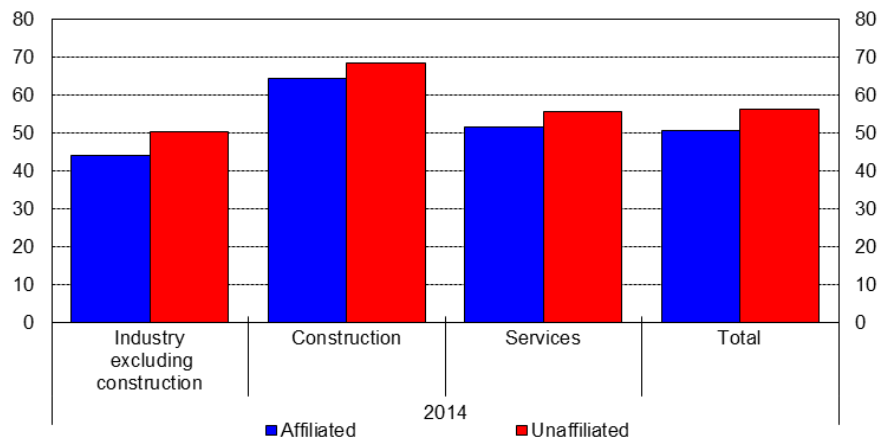
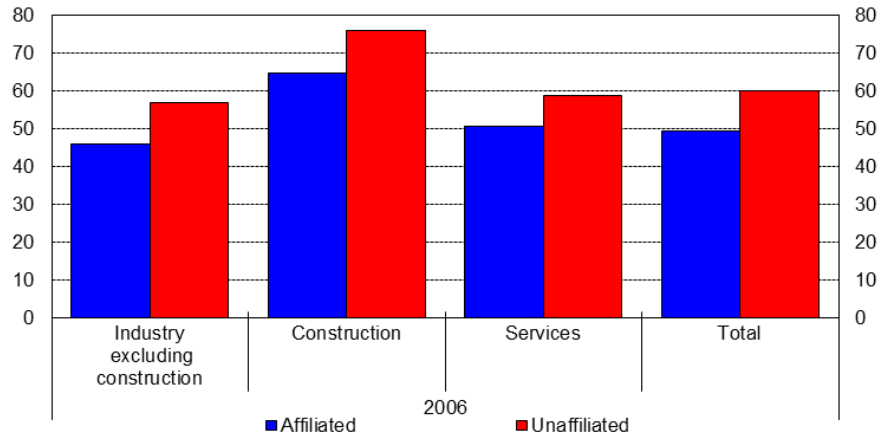
Performance and financial indicators by sector (1)

(per cent; weighted averages)



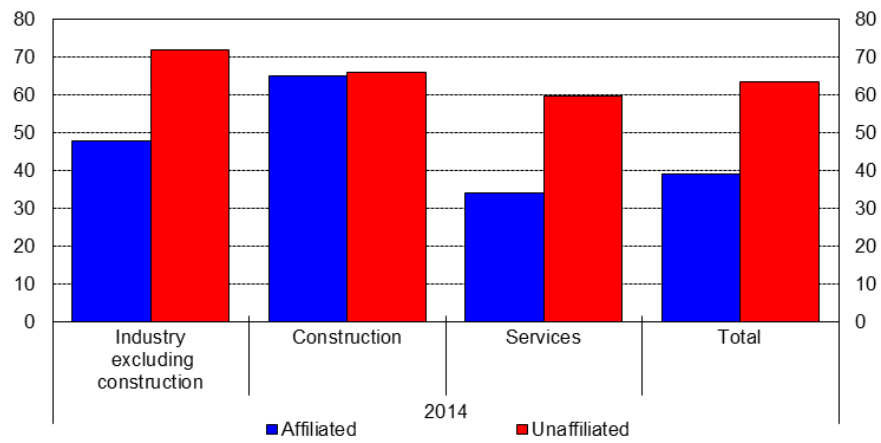
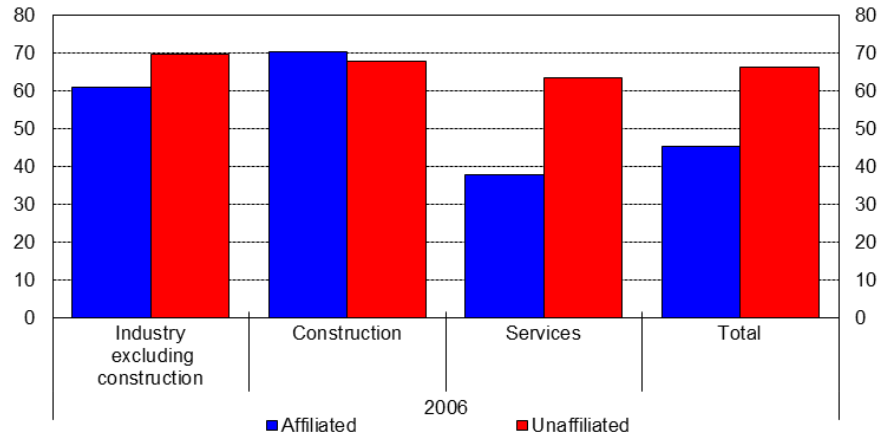
Source: Our processing of Gruppi Italiani and Cerved data.

(b) Leverage



Source: Our processing of Gruppi Italiani and Cerved data.

(c) Bank debts over total financial debts



Source: Our processing of Gruppi Italiani and Cerved data.

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