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## **Working Paper**

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**DOES SIZE MATTER? FIRM AND BUSINESS GROUP SIZE  
INFLUENCE ON THE BENEFITS OF GROUP AFFILIATION**

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# **DOES SIZE MATTER? FIRM AND BUSINESS GROUP SIZE INFLUENCE ON THE BENEFITS OF GROUP AFFILIATION**

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## **Abstract**

This paper explores whether the benefits and costs of affiliation with a business group (BG) are influenced by firm and BG size. We explore empirically this issue using a unique data set on French small businesses ownership. Our results show that affiliation with a BG has a positive influence on SMEs performance. This result holds when we account for firm size, BG size and endogeneity issues. Moreover, we observe that the benefits of BG affiliation diminish with firm size, which is consistent with the fact that the benefits of BG affiliation increase with information imperfection. Finally, affiliation with a small BG seems more beneficial than affiliation with a large BG. This paper contribute to the literature by showing that affiliation with a BG allows overcoming market imperfections related to organization size.

## **Key words**

Business group, SME, Performance, Size.

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## I INTRODUCTION

Under perfect market conditions, individual actors satisfy their needs through exchange. If so, why do firms exist at all (Coase, 1937)? Proposing the parallel that the firm is to individual agent as business group (BG) is to firm, Granovetter (1995) moves this issue a step further and asks why BGs exist. The extensive literature on the benefits and costs of BGs focuses on BGs ability to reallocate capital within group firms, through their internal capital market (ICM). The empirical literature shows that large firm BG affiliation is beneficial in emerging economies where market imperfections are severe, but is inefficient in developed economies (see Table 1 for a review). Overall, empirical results support the hypothesis that BGs are rational institutional arrangements in which internal markets replace imperfect external markets to allocate resources (Leff 1976, 1978; Kock and Guillén, 2001).

However this extensive literature remains almost silent on two emerging phenomena. This last decade, a growing number of small and medium enterprises (SMEs) got affiliated with large business groups (LBGs), and recent evidence suggests that small business groupings are an emerging phenomenon. In France, 50% of SMEs are affiliated to a BG, one third of them to a LBG and two third to a small business group<sup>1</sup> (SBG) (Cayssials et al., 2007). This paper aims to fill this gap; it explores whether the benefits and costs of affiliation with a BG are influenced by firm and BG size. Doing so we question whether affiliation with a BG allows overcoming market imperfections related to organization size. Undeniably, small businesses suffer from important imperfections with respect to the market, especially from information imperfections. Informational opacity limits small businesses access to external finance, which undermine their performance (Berger et al., 2001; Beck et al., 2006). Thus, affiliation with a BG can be beneficial for SMEs, particularly the smallest ones, because ICMs allow overcoming information imperfections. Indeed, BGs controlling firms have two

advantages, relative to other intermediaries, in allocating capital to affiliated firms. They possess an informational advantage and are able to effect changes in strategy with lower transaction costs. However, the benefits of BG affiliation might depend on the BG size. On the one hand, it could be the case that SBGs encounter difficulties to collect financing, given that their limited size exposes them to information imperfections (Kremp and Sevestre, 2000). This would then undermine the benefits of SBG affiliation. On the other hand, SBGs might be more beneficial for small businesses as agency cost, related to excess control, are limited in SBGs (Hamelin, 2011).

This paper explores whether the benefits and costs of affiliation with a BG are influenced by firm and BG size. To identify BGs, we use a unique dataset, provided by Coface services, that exhaustively lists ownership links between French corporations. Our sample contains complete accounting information, extracted from the Diane database, for 36 106 French SMEs, which are either standalone or affiliated firms, over the period 1999-2007. To test whether BG ICMs are efficient in presence of information imperfection, we observe the effect of BG affiliation on SME performance. Further, we explore whether firm size (which proxy for information imperfection) mediates the relationship between firm affiliation status and firm performance. Finally, we observe whether BG size affects the results. Our results show that affiliation with a BG has a positive influence on SMEs performance. This result holds when we account for firm size, BG size and endogeneity issues. Moreover, we observe that the benefits of BG affiliation diminish with firm size, which is consistent with the fact that the benefits of BG affiliation increase with information imperfection. Finally, affiliation with a SBG is more beneficial than affiliation with a LBG. The existence of expropriation of minority shareholders in LBG seems to explain this result.

The remainder of this paper proceeds as follows. Section 2 summarizes the literature and develops the hypothesis. Section 3 presents the data and the methodology. In section 4 we discuss the results. Finally, section 5 displays our conclusions.

## **II LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

Markets imperfections can impair the efficiency of financial markets; in this context, ICMs may improve the allocation of financial resources. According to Alchian (1969) and Williamson (1975), BG controlling firms improve capital allocation efficiency, compared to other types of intermediaries, because of their higher information production. BG controlling firms have access to private information on group firms, which increases their ability to assess the quality of projects, reducing adverse selection issues. Moreover, controlling firms differ from banks because they hold the residual control rights on group-firm assets. Control rights both reduce monitoring costs and give to controlling firms the authority to redeploy the assets of projects that are performing poorly under existing management (Gertner et al. 1994). Given their specificities, controlling firms are more prone to operate on the basis of “winner picking” (Stein, 1997). Winner picking implies that resources are allocated to the best-performing group firms, which improves capital allocation.

There are two approaches to evaluate empirically the efficiency of capital allocation in conglomerates or BGs. A majority of empirical work follows the approach of Berger and Ofek (1995), who compare the performance of an affiliated firm with a standalone counterpart. Other studies observe whether affiliated-firm investment sensitivity to BG cash flow depends on firm investment project quality, following the approach of Shin and Stulz (1998). Table 1 summarizes the mixed empirical evidence on ICM efficiency. ICMs tend to increase affiliated-firm performance in emergent countries, whereas in developed countries

BG affiliation has systematically a negative influence on affiliated-firms performance. Overall, the empirical evidence is consistent with the view that ICMs are a second-best option in the presence of market imperfections (Leff, 1978).

This literature almost exclusively focuses on differences in the benefits of BG affiliation for large firms, related to variations in the financial development and institutional environment. However, in developed countries, market imperfections vary according to firm's size class. Indeed, small businesses suffer from informational opacity, which limits their access to external financing (Berger et al., 2001). Undoubtedly, in the specific context of small businesses, BG ICMs might be more efficient in allocating capital than external investors, because of their greater access to information and ability to redeploy assets. Therefore, we expect group affiliation to be beneficial for small businesses in developed countries such as France. This led us to formulate our first hypothesis:

**H1: Affiliation with a BG has a positive influence on small businesses performance.**

Given that informational opacity is largely determined by firm size (Berger et al., 2001) and that BG affiliation could be a factor of reduction of information asymmetry (Ghatak and Kali, 2001), we expect that the positive influence of BG affiliation on SMEs performance will decrease with firm size. The scarce empirical evidence on this topic shows that financial constraints are significantly reduced for small firms but not for medium and large firms in German Konzern (Gorodnichenko et al., 2009). This led us to formulate our second hypothesis:

**H2: Firm size negatively moderates the positive relationship between BG affiliation and small businesses performance.**

**Table 1: Synthesis of the empirical literature on the efficiency of ICMs**

Papers	Sample	Level of comparison	Method	Measure of performance	Efficiency of ICM
<i>Berger and Ofek (1995)</i>	US 1986-1991	Conglomerate	Comparison	Market Value	-
<i>Buysschaert et al. (2008)</i>	Belgium 1997-2004	Affiliated firms	Comparison	ROA	-
<i>Chacar and Vissa (2005)</i>	US - India 1989-1999	Affiliated firms	Comparison	ROA persistence	-
<i>Chang and Choi (1988)</i>	Korea 1975-1984	Affiliated firms	Comparison	ROA, ROE	+
<i>Cheong et al. (2010)</i>	Korea 1990-1996	Affiliated firms	Comparison	Factor intensity, profitability, growth	+
<i>Choi and Cowing (1999)</i>	Korea 1985-1993	Affiliated firms	Comparison	ROE	-
<i>Claessens et al. (2006)</i>	9 East Asian countries 1994-1996	Affiliated firms	Comparison	Market value	=
<i>Estrin et al. (2009)</i>	Russia 1993-2002	Affiliated firms	Comparison	ROA	+
<i>Ferris et al. (2003)</i>	Korea 1990-1995	Affiliated firms	Comparison	Excess value, ROA	-
<i>Gautier and Hamadi (2005)</i>	Belgium 1991-1996	Affiliated firms	Effect of firm performance on its investment sensitivity to BG cash flow	ROA	=
<i>George and Kabir (2008)</i>	India 1998-2000	Affiliated firms	Comparison	ROA, Tobin Q	-
<i>Gopalan et al (2007)</i>	India 1989-2001	Affiliated firms	Effect of firm performance on the decision to allocate group loans	ROA	-
<i>Gordnichenko et al. (2008)</i>	Germany 1988-2000	Affiliated firms	Effect of group affiliation on firm access to external finance		+
<i>Hoshi et al. (1990)</i>	Japan 1978-1985	Affiliated firms	Comparison	Cumulative investment	+
<i>Hoshi et al. (1991)</i>	Japan 1965-1986	Affiliated firms	Effect of firm performance on its investment sensitivity to BG cash flow	Tobin Q	-
<i>Khanna and Palepu (2000)</i>	India 1993	Affiliated firms	Comparison	ROA, TOBIN Q	-
<i>Khanna and Rivkin (2001)</i>	14 emerging countries	Affiliated firms	Comparison	ROA, ROE	+ in certain countries
<i>Khanna and Yafeh (2005)</i>	12 emerging countries and Japan	Affiliated firms	Comparison	ROA	Depends of the country
<i>Kremp and Sevestre (2000)</i>	France 1996	Affiliated firms	Effect of group affiliation on firm access to external finance		+ for LBG
<i>Lee and Lee (2002)</i>	Korea 1997-2001	Affiliated firms	Effect of firm performance on equity investment from other BG firms	Assets, Earnings	+
<i>Lensink and van der Molen (2009)</i>	India 1996-2001	Affiliated firms	Comparison	Market value, ROA	=
<i>Maksimovic and Phillips (2002)</i>	US 1975-1992	Conglomerate	Comparison	Productivity	-
<i>Perrotti and Gelfer (2001)</i>	Russia 1993-2002	Affiliated firms	Effect of firm performance on its investment sensitivity to BG cash flow	Tobin Q	+
<i>Shin and Stulz (1998)</i>	US 1980-1992	Conglomerate divisions	Effect of firm performance on its investment sensitivity to BG cash flow	Tobin Q	-

Alternatively, affiliation with a BG might also be beneficial for SMEs because intra-group debt guarantees increase affiliated firms' debt capacity (Chang and Hong, 2000). Affiliated firms can also benefit from the BG's reputation to improve bank perception (Shiantarelli and Sembenelli, 2000). Given the nature of these benefits we can conjecture that they will increase with BG size. Evidence on these issues is scarce, but Kremp and Sevestre (2000) observe that the financial structure of standalone firms and firms affiliated to a SBG

are almost equivalent, which suggest that SBGs might not facilitate SMEs access to financial resources. These arguments provide us with additional testable hypothesis:

**H3a: The positive relationship between BG affiliation and small businesses performance is stronger in LBG than in SBG.**

However, inefficient cross-subsidization can undermine the efficiency of capital allocation in BGs. Inefficient cross-subsidization occurs when there is over-investment in poorly performing BG firms and under-investment in highly performing ones. According to Meyer et al. (1992), failing businesses create more value loss as part of a BG than as standalone firms. Whereas a failing business cannot have a value below zero if operated on its own, it can have a negative value if it is part of a BG that provides cross-subsidies. According to the literature on large BGs, inefficient cross-subsidies result from expropriation of minority shareholders when there is excess control<sup>2</sup> (Johnson et al., 2000). In LBG, empirical results show that excess control is detrimental to firm performance and that controlling firms divert resources out of controlled firms (for evidence on France and European countries see Boubaker, 2007; Faccio et al., 2001). However, in the case of SBGs, the specificity of SMEs' minority shareholders makes it difficult to extract private benefits at their expense. Therefore, excess control does not undermine firm performance in SBGs (Hamelin, 2011). This led us to mitigate the previous hypothesis:

**H3b: The positive relationship between BG affiliation and small business performance is lower in LBG than in SBG, because of the negative effect of excess control on firm performance in LBG.**



### III DATA AND METHODOLOGY

#### I.1 DATA PRESENTATION

The sample used in this study comes from two databases; we merge the information thanks to each firm's unique fiscal identifier (SIREN). We identify BGs using a large database provided by Coface Services, which list 1 900 000 direct and indirect ownership links between French corporations in 2005. Accounting information comes from the Diane database, supplied by Coface Services and Bureau van Dijk. This database provides detailed accounting information for French firms from 1999 to 2007.

The initial database on ownership links between firms does not identify BGs, but only direct and indirect ownership links between firms. We adopt the criterion of majority control to identify BGs (Chapelle and Szafarz, 2005)<sup>3</sup>. A BG corresponds to a chain of majority-control relationships: the ultimate shareholder effectively controls a firm (with direct cash flow rights larger than 50%) that in turn effectively controls another firm, and so on. Finally, we distinguish between three types of firm. **Controlling firms** are the BG's ultimate shareholder. **Affiliated firms** are affiliated to a BG but are not the ultimate shareholder. In **standalone firms**, no outside firm holds more than 50% ownership.

In order to elaborate the study sample, we merge the ownership information with the Diane database. Following common practice, we exclude observations for which we do not have the required information and with incoherent balance sheet information (such as negative total assets). Moreover, we only maintain in the sample firms which respond to the size criterion of an SME<sup>4</sup>. Using these criteria, we end up with a firm-level sample of 23 288 affiliated firms, and 12 818 standalone firms for which we have all relevant information over

the period 1999-2007. We do not include controlling firms in the sample because we focus on the effect of BG affiliation.

### III.1 Methodology

In order to test whether affiliation with a BG has a positive influence on small businesses performance we estimate equation 1. We rely on OLS on means estimation, where we average the variable values over the study period, because fixed-effects estimation is not possible as BG affiliation, which is the central variable in our study, is itself a fixed effect.

$$ROA_i = \beta_1 + \beta_2 Affiliated_i + \beta_3 Size_i + \beta_4 Age_i + \beta_5 Leverage_i + \beta_6 Risk_i + Industry_i + \varepsilon_i \quad (1)$$

In equation 1, the dependent variable is firm **ROA**, which proxies for firm operating profitability. Firm ROA is computed as the ratio of the firm EBITDA on its total assets. Our central explicative variable is **Affiliated**, which takes the value 1 when the firm is affiliated to a BG, and zero when it is a standalone firm. We also include several control variables, which also influence firm performance. Firm **industry** controls for firm performance opportunities—such as the importance of economies of scale in the industry where the firm operates—as well as characteristics of the market, including its size and the intensity of competition. We also include control variables for firm **age** and **size** (firm total assets minus its participations in other BG firms). In addition, firm **leverage** (ratio of total debt to equity) controls for firm financial structure. Finally, we use the standard deviation of the firm ROA over the period to control for firm operational **risk**.

Possible endogeneity problems may be involved, because the relationship between firm BG affiliation and firm performance could be spurious. In the model presented thus far, it is assumed that firm BG affiliation drives firm performance. However, firms could get affiliated because of their higher performance. To account for this endogeneity problem, we apply the instrumental variable (IV) estimation method<sup>5</sup>. We instrument BG affiliation

adapting Laeven and Levine (2009) instruments for ownership. Affiliation with a BG is instrumented with the fraction of groups in an industry and the industry size.

**Table 2: Descriptive statistics**

	Mean	Std deviation	Minimum	Maximum
<b>Size</b>	4005	12913	2	447977
<b>Age</b>	27	30	1	105
<b>Leverage</b>	187%	911%	0%	1258%
<b>Risk</b>	10%	27%	0%	3821%
<b>CF</b>	76%	24%	13%	100%
<b>ROA</b>	12%	18%	-1343%	557%

To test whether firm size negatively moderates the positive relationship between BG affiliation and small businesses performance, we add, in equation 1, an interaction term between firm affiliation status and firm size (equation 2).

$$ROA_i = \beta_1 + \beta_2 Affiliated_i + \beta_3 Affiliated_i * Size_i + Controls + \varepsilon_i (2)$$

Finally, to test whether BG size affects our results we adopt two approaches. First, we replace, in equation 2, the dummy affiliated by two dummies variables: **LBG** which is equal to one if the firm belongs to a BG which size is higher than the one of a SME. And **SBG** which is equal to 1 if the firm belongs to a BG which size is the one of a SME. This specification allows comparing standalone firms to firms affiliated with a LBG and to firm affiliated with a SBG. Second, we perform an estimation on the subsample of affiliated firms to compare the benefits of affiliation according to BG size. Thus, we re-estimate equation 2 for the subsample of affiliated firms and use the dummy SBG. Moreover we introduce the **CF** variable, which captures the indirect ownership of the controlling firm into the affiliated firm, to test whether excess control affects firm performance. We also introduce an interaction term between the

SBG and CF variable to observe whether excess control affects differently firm performance according to BG size.

#### IV RESULTS

Table 3 presents the results of our estimations. Our specifications have a satisfactory statistical quality (the adjusted  $R^2$  are 15%) and significant Fisher statistics for all regressions.

As expected, affiliation with a BG has a positive influence on SMEs performance (column 1). Indeed, the parameter estimate on affiliated is positive and significant, which indicates that affiliation with a BG promotes small businesses performance. This effect is economically significant as affiliation with a BG translates into a ROA higher by 2.29%. This result support the idea that capital allocation by BGs is more efficient than capital allocation by external investors, when there are important information imperfections, as it is the case for SMEs.

This result is robust to endogeneity. Indeed, IV estimation results, reported in column 2, are qualitatively similar to those obtained for OLS regressions. The signs and significance of the affiliated variable is unchanged, but the magnitude of the estimated coefficient increases. Results are therefore consistent with the OLS results, confirming that BG affiliation has a positive influence on small businesses performance. Overall, results of the IV estimation indicate that the positive relationship between BG affiliation and firm performance does not only result from the fact that only profitable SMEs get affiliated to BG.

When we introduce an interaction term between affiliated and size variables the coefficient on the dummy affiliated remains significant and of the same order of economic significance (column 3). The interaction term between firm affiliation status and firm size is negative and statistically and economically significant<sup>6</sup>. Although, the positive influence of

BG affiliation decreases as firm size increases, the performance of affiliated SMEs remains higher than the one of standalone firms. Indeed, BG affiliation exerts a negative influence on firm performance for firms for which their total asset is higher than 78 Million Euros, which are not SMEs. This result confirms our previous result: BG affiliation is beneficial for SMEs performance. Moreover, it validates our second hypothesis according to which the benefits of BG affiliation are stronger for smaller firms. In a nutshell, the benefits of BG affiliation decrease with firm size; they increase with the degree of information imperfections.

In column 4, which accounts for BG size, the coefficients on the dummies LBG and SBG are significant and of the same order of economic significance than the affiliated dummy in column 1 and 3. Moreover, the interaction term between affiliation status and firm size keeps the same statistical and economic significance than in column 3. Therefore, BG size does not significantly affect our results; affiliation with a LBG or a SBG is beneficial for SMEs, and this benefit decreases with firm size.

Finally, when we look at the effect of BG size within affiliated firms we observe that there are differences between LBG and SBG (column 5). First, the positive and significant coefficient on the dummy SBG shows that, on average, firms affiliated with SBG overperform firms affiliated with LBG. This result contradicts our H3a hypothesis. It seems that SBG, even if they are small, are able to pool financing for their affiliated firms. Second, results show that excess control (which increases as the variable CF decreases) has a negative influence on the benefits of BG affiliation, but only for affiliation with LBG (the interaction term between SBG and CF is negative). This observation validates our H3b hypothesis according to which the benefits of affiliation with a SBG (no expropriation of minority shareholders) are higher than the benefits of affiliation with a LBG (access to more resources). Third, the interaction term between SBG and size is not significant, which indicates that the effect of firm size on

the benefits of affiliation do not differ according to BG size. Overall, column 5 suggests that the benefits of BG affiliation differ according to BG size.

**Table 3: Regressions results**

OLS and IV (2) regression results. We report robust standard errors in italics below the parameter estimate \*\*\*, \*\*, and \* indicate coefficient statistically significant at the 1%, 5%, and 10% level.

	(1)		(2)		(3)		(4)		(5)
<b>Affiliated</b>	0,0229	***	0,0669	***	0,0241	***			
	<i>0,0019</i>		<i>0,0092</i>		<i>0,0019</i>				
<b>Affiliated*Size</b>					-3,08E-07	***	-3,24E-07	***	
					<i>8,12E-08</i>		<i>8,74E-08</i>		
<b>LBG</b>							0,0267	***	
							<i>0,0039</i>		
<b>SBG</b>							0,0237	***	0,0245
							<i>0,0020</i>		<i>0,0119</i>
<b>SBG*Size</b>									1,21E-07
									<i>1,48E-07</i>
<b>SBG*CF</b>									-0,0344
									<i>0,0145</i>
<b>CF</b>									0,0288
									<i>0,0148</i>
<b>Size</b>	-5,09E-07	***	-5,49E-07	***	-3,67E-07	***	-3,67E-07	***	-7,40E-07
	<i>9,32E-08</i>		<i>9,31E-08</i>		<i>7,86E-08</i>		<i>7,84E-08</i>		<i>1,53E-07</i>
<b>Age</b>	-0,0003	***	-0,0003	***	-0,0003	***	-0,0003	***	-0,0002
	<i>4,35E-05</i>		<i>4,38E-05</i>		<i>4,35E-05</i>		<i>2,99E-05</i>		<i>4,54E-05</i>
<b>Leverage</b>	-2,84E-05		-2,89E-05		-2,81E-05		-2,82E-05		-0,0001
	<i>2,60E-05</i>		<i>2,54E-05</i>		<i>2,58E-05</i>		<i>2,59E-05</i>		<i>2,35E-05</i>
<b>Risk</b>	-0,2126	*	-0,2132	*	-0,2126	*	-0,2127	*	-0,1921
	<i>0,1088</i>		<i>0,1088</i>		<i>0,1088</i>		<i>0,1089</i>		<i>0,1276</i>
<b>Intercept</b>	0,0990	***	0,0820	***	0,0986	***	0,0986	***	0,1035
	<i>0,0112</i>		<i>0,0115</i>		<i>0,0111</i>		<i>0,0111</i>		<i>0,0169</i>
<b>Industry dummies</b>	Yes		Yes		Yes		Yes		Yes
<b>NB obs</b>	36106		36106		36106		36106		23288
<b>Adjusted R<sup>2</sup></b>	0,14		0,14		0,14		0,14		0,15
<b>Fisher stat.</b>	245,37	***	240,53	***	235,78	***	226,74	***	154,62

The signs of the estimates of the control variables are as expected and consistent across specifications, except for firm risk which is negatively related to firm performance. Although this is quite surprising it has been observed in previous studies of the same type (see for example Buysschaert et al., 2008). This observation can be explained by the fact that we

do not rely on market data but on accounting data in which firm profitability is the effective firm profitability, whereas shares market values also account for the expectations of the market. This paper does not focus on this issue; however future research on the reasons to this puzzle could be very interesting. Firm size is negatively associated with firm performance, which is coherent with our observation that the benefits of BG affiliation decrease with firm size. Firm age is negatively associated with firm performance, which is commonly observed in the empirical literature. Finally, firm leverage has no significant influence on firm performance, this result can be explained by our choice to focus on a before tax measure of performance.

## **V CONCLUSION**

This paper explores whether the benefits and costs of affiliation with a BG are influenced by firm and BG size. We explore empirically this issue using a unique data set on French small businesses ownership. Our results show that affiliation with a BG has a positive influence on SMEs performance. This result holds when we account for firm size, BG size and endogeneity issues. Moreover, we observe that the benefits of BG affiliation diminish with firm size, which is consistent with the fact that the benefits of BG affiliation increase with information imperfection. Finally, affiliation with a SBG is more beneficial than affiliation with a LBG. The existence of expropriation of minority shareholders in LBG seems to explain this result. Overall, results show that affiliation with a BG allows overcoming market imperfections related to organization size.

This paper makes two main contributions to the literature. First, it tests whether affiliation with a BG is a response to capital market imperfection, in the specific context of small businesses, which suffer from important information imperfections. Results point out that affiliation with a BG is beneficial for small businesses performance, and that this effect

decreases with firm size. Doing so we contribute to the to the scarce literature that investigates the benefits of group affiliation for SMEs (Kremp et Sevestre, 2001; Gorodnichenko et al. 2009). Moreover, we contribute to the large literature on the benefits and cost of BG affiliation by investigating whether information imperfections (proxy by size) influence ICM efficiency, whereas the existent literature focuses on variations in the institutional and financial development context through cross country variations.

Second, we present a study of SBGs, which, to our knowledge, is an unexplored topic in the economics and finance literature. The entrepreneurial literature suggests that the formation and expansion of a SBG might be a common way to grow a small firm (Levie, 1997 and McKelvie et al., 2006). However, there are only two studies that specifically focus on SBG (Lechner and Leyronas, 2009 and Iacobucci and Rosa, 2010). Both studies adopt a qualitative approach to investigate how the constitution of a SBG favors growth. Our paper contributes to this scarce literature by adopting a quantitative approach and suggesting that a reason for which the constitution of a SBG favors growth relies on the fact that their ICMs are efficient, which alleviates SMEs financial constraints.

This paper leaves several questions unanswered, which could lead to interesting future research. This study does not explore the dynamics of BGs: are they formed through creation of new businesses or by acquisition of existing firms? Indeed, such differences in the dynamic of creation of BG could partly drive the results. Although comparison of ages between controlling and controlled firms indicates that SBGs are more likely than LBGs to be created through creation rather than acquisition, our data does not allow us to present formal evidence on this issue. Finally, this study does not explore alternative motivations to structure into a BG. For example the existence of size thresholds for legal and social obligations can be an important factor explaining the choice of this peculiar organizational mode.



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<sup>1</sup> A SBG bonds together small businesses that are controlled by one of the constituent small businesses, and SBG economic weight is equivalent to that of a SME.

<sup>2</sup> Excess control occurs when there is a difference between control rights and cash-flow rights in the context of indirect ownership.

<sup>3</sup> The detail on the identification procedure is available upon request.

<sup>4</sup> We use the European Commission SME definition. The EU definition classically includes size thresholds to define the size perimeters of SMEs. We use the size threshold expressed in terms of total assets (< 43 M€). To avoid over estimation of the economic weight of affiliated firms we use their total asset minus their participations in other BG firms.

<sup>5</sup> We use an adapted 2SLS method where the first stage is a probit estimation of the probability of being an affiliated firm.

<sup>6</sup> Its magnitude is rather low given that size is expressed in thousand Euros, thus a 1000 Euros increase in total assets decreases the positive effect of affiliation on firm performance by 0.005 points. Thus, an increase of total assets by 1 Million Euros decreases firm performance by 0.5 points, which is not negligible.

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