

IS GROUP AFFILIATION PROFITABLE IN DEVELOPED COUNTRIES?

BELGIAN EVIDENCE

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Is Group Affiliation Profitable in Developed Countries? Belgian Evidence

Abstract

Several studies find that business groups create value for affiliated companies in developing countries characterized by weak institutions and poorly functioning markets. Business groups act as an intermediary between imperfect markets and individual entrepreneurs. This raises the question whether business groups also create value in countries with strong institutions and well-functioning markets, as there are also substantial costs associated with these groups. We find that group-affiliated companies in Belgium show lower profitability and higher profit volatility than stand-alone companies. Our results also suggest that internal capital markets in Belgian business groups subsidize poorly performing group members.

Keywords: business groups, profitability, profit volatility, developed countries, internal capital markets

1. INTRODUCTION

In recent years, a growing literature has investigated the role of diversified business groups. This literature primarily focuses on emerging countries, which are often characterized by weak institutions and poorly functioning capital, labor and product markets. Disclosure is often inadequate, and the legal system, corporate governance and law enforcement are generally weak. In this context, intermediaries such as investment banks, mutual funds and venture capitalists are not fully developed, and large diversified business groups can create value by acting as an intermediary between imperfect markets and individual entrepreneurs. They internally replicate the functions which in advanced economies are provided by external intermediary institutions. They may also wield considerable market power, which they may abuse by preventing entry to markets and predatory behavior.

Studies on emerging markets generally reveal that group affiliation is indeed associated with a better performance (e.g. Chang and Choi, 1988, Chang and Hong, 2000, for Korea; Gonenc, Kan and Karadagli, 2004, for Turkey; Keister, 1998, for China; Khanna and Palepu, 1999, 2000a, 2000b, for Chile and India; Khanna and Rivkin, 2001, for an international sample). This raises the question whether business groups can also create value for companies in developed countries with strong institutions and well-functioning capital, labor and product markets. In these countries, the potential benefits of business groups are likely to be significantly lower than in emerging markets.

Moreover, there are substantial costs associated with business groups. First, it has been shown that internal capital markets may lead to misallocation of capital in multidivisional structures, by strong subsidiaries subsidizing weaker divisions (e.g. Lamont, 1997; Rajan et al., 2000;

Scharfstein and Stein, 2000; Shin and Stulz, 1998). Second, business groups are often characterized by a high disparity between control rights and ownership rights of the controlling shareholder, which may lead to specific agency costs. The disparity between control rights and ownership rights may induce the controlling shareholder to divert resources out of companies, at the expense of minority shareholders (a phenomenon referred to as ‘tunneling’ by Johnson et al., 2000). Holmén and Högfeltdt (2005) argue that in countries with strong institutions, where tunneling is less likely, the separation of ownership and control through pyramidal structures can lead to significant overinvestment by group members. Their empirical investigation of Swedish business groups confirms this hypothesis. A number of studies on the performance of Japanese Keiretsu affiliates find that Keiretsu affiliation lowers performance, which suggests that the costs of Keiretsu affiliation are greater than the benefits (e.g. Caves and Uekusa, 1976; Dewenter et al., 2001; Nakatani, 1984; Prowse, 1992). Some studies find that even in developing countries group affiliation may reduce company value and profitability (e.g. Claessens et al., 2002; George et al., 2004; Joh, 2003).

In this paper, we investigate the profitability of stand-alone companies and companies which are affiliated with listed holding companies in Belgium. Belgium provides a particularly interesting environment to study the effect of group affiliation on profitability. As in many other Continental European countries, family-controlled financial and industrial groups in Belgium still play an important role in the accumulation and allocation of capital in the economy. Large numbers of companies, which are often active in a wide range of industries, are linked by networks of share ownership and interlocking directorates, and are controlled by listed holding companies through intermediate layers of subholding companies. These groups, which were the largest shareholders in Belgium throughout the 20th century, were created at times when institutions in Belgium were weak and external capital markets were poorly

developed. However, the institutional and financial environment in Belgium today, as in other Continental European countries, does not seem to warrant the existence of such groups anymore. This raises the question how business groups affect the performance of affiliated companies, of which profitability is an important dimension. Our study is, to the best of our knowledge, the first to investigate this in a Continental European country.

Moreover, Khanna and Yafeh (2005b) note that information on unlisted group companies is almost never available to researchers, which creates a serious selection problem in research on business groups. However, Belgian law obliges all listed *and* unlisted companies to deposit their annual financial statements in a prescribed format at the National Bank of Belgium, where they are available to the public. They contain a detailed balance sheet and income statement, as well as information on intra-group financing and the equity stakes held by the company. The availability of this information allows us to investigate the profitability of *unlisted* group companies versus the profitability of *unlisted* stand-alone companies.

We find that over the eight-year period 1997-2004, group-affiliated companies were less profitable than stand-alone Belgian companies. Our results also suggest that the profitability of group companies does not depend on the size of the group to which they belong, or on the extent of group diversification. Moreover, we find a negative relationship between net group financing and the performance of group companies, which suggests that internal capital markets in Belgian business groups transfer funds from good performers to poorly performing group companies.

We also investigate the impact of group affiliation on profit volatility. Groups may be beneficial for affiliated companies because of the risk sharing potential among affiliated

companies. This conventional wisdom is buttressed by a literature on Japanese Keiretsu (e.g. Caves and Uekusa, 1976; Nakatani, 1984; Yafeh, 2003). Khanna and Yafeh (2005a) find evidence on risk sharing between business group affiliates in developing countries. We use their methodology to test whether the group companies in our sample have lower profit volatility than stand-alone companies. In contrast to the findings of Khanna and Yafeh (2005a), we find that group companies in Belgium actually have *higher* profit volatility than stand-alone companies. We also find that profit volatility is higher for members of non-diversified groups and for members of smaller groups.

The remainder of the paper is organized as follows. First, we review the features of Belgian corporate groups and holding companies and outline the research questions. We discuss the sample in section 3, and the variables used in the empirical analysis in section 4. The empirical results are reported in section 5. These results lead us to elaborate on why inefficient business groups would be able to endure in section 6. We draw some conclusions in the last section.

2. HOLDING COMPANIES AND BUSINESS GROUPS IN BELGIUM

In Belgium and in other Continental European countries, business groups often consist of layers of quoted and non-quoted holding companies, in which the ultimate shareholders control non-holding companies through complex cross-holdings and pyramidal structures. A holding company can be defined as “a professionally managed institution owning a portfolio of stocks in public and private companies with the purpose of influencing them. In realizing this objective, a holding company acts both as a financial intermediary and as an active shareholder.” (Banerjee et al., 1997). An typical example of a Belgian business group is the

holding company group around business man Albert Frère. Figure 1 presents a simplified version of the shareholder structure of this group in 1998. The group is dominated by the Frère-Bourgeois company, which is a non-listed entity directly controlled by Albert Frère. A chain of intermediate holding companies (Nationale Portefeuillemaatschappij (NPM), Groep Brussel Lambert (GBL), Electrafina) allows him to control a vast industrial empire with relatively small cash flow stakes.

Insert Figure 1 about here

The importance of Belgian business groups, based on holding company structures, should be seen in its historical context. As a reaction to the worldwide financial crisis at the beginning of the 1930s, in 1934 a law was introduced that forced the universal banks, which historically dominated the Belgian economy, to separate their banking and investment activities. This led to the establishing of holding companies, which owned a diversified portfolio of investments in a wide range of industrial and commercial activities, and were the largest shareholders in Belgium throughout the 20th century. Pyramidal ownership structures allowed these holding companies to maintain control over their subsidiaries with only limited investments. In recent times, Belgian holding companies remain important investors in financial, industrial and commercial companies (Becht et al., 2000).

Because of fundamental differences in managerial organization, comparisons of groups controlled by Belgian holding companies with American conglomerates are bound to be misleading. American conglomerates are tightly structured, whereas Belgian groups are often loose organizations of distinct legal entities with an ill-defined corporate policy. Belgian

corporate groups also differ from Japanese financial Keiretsu groups. While Belgian groups have a *hierarchical* structure, with a holding company controlling a pyramid of companies, members of the Japanese Keiretsu are considered equals. Traditionally, these members have close ties with one bank, which plays an important role in the financing of these companies, and is responsible for monitoring the business affairs. For Belgian groups, it is the controlling holding company that monitors members and intervenes in corporate policy or replaces management when deemed necessary. Banks stick to traditional banking activities and therefore play a smaller role in the management and financing of group members than does the main bank in a Keiretsu. Furthermore, while there is extensive co-ordination of trade through a group trading company in the Japanese Keiretsu, no trading companies or centralized buying or selling agents exist in Belgian groups, which are primarily financial.

The separation of ownership and control in pyramidal structures generates a strong incentive for the controlling shareholders to divert resources between companies in the group. However, there is no proof of expropriation of minority shareholders in Belgian business groups (see Buysschaert et al., 2004). Nevertheless, the shares of listed Belgian holding companies generally trade at a significant discount to their estimated net asset value, which might be caused by the extraction of private benefits by the controlling shareholders (Rommens et al., 2004). Interestingly, Holmén and Högfeldt (2005), who observe a similar discount for holding companies in Swedish pyramidal groups, find evidence that in Sweden this discount is not caused by extraction of private benefits, but by overinvestment of group companies.

Group Companies versus Stand-Alone Companies

How do Belgian business groups affect the profitability of group members? These groups were created at times when institutions in Belgium were weak and external capital markets were poorly developed. Nowadays, Belgium is a country with strong institutions and well-developed external capital markets, which are fully integrated in the international capital markets. It can therefore be expected that group affiliation will bring few benefits for modern Belgian companies. As there are substantial costs associated with business group affiliation, these may even outweigh the benefits, reducing the profitability of Belgian companies affiliated to a group.

Group size and Group Diversification

The effect of group affiliation on the profitability of group members may depend on group characteristics, such as the size and the degree of diversification of the group. Larger groups might be more beneficial, as they e.g. have easier access to resources, can allocate these resources more efficiently or can reduce cost through economies of scale, and have a positive influence on the performance of its members (e.g. George et al., 2004). Diversification could be beneficial to group members if the group has some resources that can be profitably deployed in the different industries in which the group operates, such as managerial skills, technology etc.. Moreover, a reduction in variance of future cash flows resulting from diversification may increase the debt capacity at the group level (e.g. Martin and Sayak, 2003). However, group size and group diversification may be negatively related to profitability if they are driven by managerial objectives such as *empire building* or excessive risk aversion.

Larger and diversified business groups are also more likely to have a well-developed internal capital market than smaller and focused groups. A diversified group's cash flows may provide a superior means of funding an internal capital market. Deloof (1998) finds that in the 1987-1991 period Belgian group-affiliated companies faced less financing constraints than stand-alone companies, consistent with the hypothesis that internal capital markets redistribute funds among group members. An internal capital market may create value through its advantages over external capital markets, as it may contain superior information about investment opportunities (Myers and Majluf, 1984), and it can provide efficient monitoring (Jensen and Meckling, 1976). However, there is also a dark side to internal capital markets, as they may lead to cross-subsidization of poorly performing business units by good performers (e.g. Lamont, 1997; Rajan et al., 2000; Scharfstein and Stein, 2000; Shin and Stulz, 1998). Lincoln et al. (1996) and Gedajlovic and Shapiro (2002) find evidence on cross-subsidization in Japanese Keiretsu groups, while the results of Chang and Hong (2000) and Ferris et al. (2003) suggest cross-subsidization in Korean Chaebol groups.

Intra-Group Financing

We not only consider the effect of group size and group diversification on the profitability of group members, but we also investigate the relationship between intra-group financing and profitability. If the internal capital market allows financially constrained group members to fund good investment opportunities, it will create value. In that case, we expect a positive relation between receiving financial resources and profitability of group members. On the other hand, if resources are allocated to group members with low profitability, there will be a negative relation between receiving financial resources and profitability of group members. If

companies have access to efficient and liquid external capital markets, as is the case in Belgium, they should not need an internal capital market to fund valuable investments. We therefore expect that receiving intra-group financing will not be associated with higher profitability, as good investment projects can generally be funded externally anyway. If internal capital markets lead to cross-subsidization of poor performers, there might even be a *negative* relation between group financing and profitability. It should be noted that this negative relation does not necessarily imply an *inefficient* redistribution of funds. Indeed, it can be argued that the support of a financially troubled group member will pay for itself in the long run, after its successful rescue and turnaround (see e.g. Chang and Hong, 2000).

3. SAMPLE

The sample we use consists of Belgian group companies and Belgian stand-alone companies. We define group companies as those companies which are affiliated with holding companies, listed on Euronext Brussels (formerly the Brussels Stock Exchange) in 2001. We focus on companies affiliated with listed holding companies, because these holding companies represent most of the economically important Belgian business groups, and we do not have all information necessary to reliably identify business groups controlled by unlisted holding companies. We used the classification of Euronext Brussels, which was in use until February 2000, to identify listed holding companies. Euronext Brussels defined holding companies as “those companies whose purpose is to invest in other (quoted) companies, except financial institutions”. To this list of holding companies, we added one holding company which went public after February 2000. Mutual funds and state-owned holding companies were excluded. As a result, we obtained a list of 25 listed Belgian holding companies. As some of these holding companies belonged to the same group, they represent 19 business groups.

For each of the selected holding companies, we consulted the 2001 consolidated annual statements deposited at the National Bank of Belgium, and included all Belgian subsidiaries which were fully or proportionally consolidated. According to the Belgian accounting law, all subsidiaries which are directly or indirectly controlled by the parent company should be consolidated. If one of these subsidiaries had a consolidated annual statement itself, its Belgian subsidiaries were also incorporated in the sample. This procedure was repeated until a level was reached on which none of the Belgian subsidiaries has a consolidated annual statement. Financial companies and companies for which only an abbreviated financial statement¹ was available were not included. One group was dropped because it included only non-Belgian subsidiaries. Two groups were dropped because they only had financial subsidiaries. The listed holding companies themselves were also removed from the sample. Our final sample includes 247 group companies, belonging to 16 different groups. Most of these groups were controlled by Belgian families or individuals. There are two exceptions: the *Société Financière des Caoutchoucs* was controlled by the French *Bolloré* group, and the *Compagnie Benelux Paribas* was controlled by the French *BNP Paribas* group.

Insert Table 1 about here

Table 1 gives an overview of the 16 groups represented in the sample. The number of sample companies for each group ranges between two (*Auximines*, *Bois Sauvage*, *Deficom*, *SCF*,

¹ Companies are obliged to deposit their financial statement at the National Bank of Belgium in the complete format if they have more than 100 employees or if they satisfy at least two of the following criteria: number of employees (yearly average) of at least 50, turnover (value-added tax excluded) of at least 6.250.000 Euro (EUR) and total assets of at least 3.125.000 EUR. Otherwise they are allowed to deposit only an abbreviated format.

Unibra) and 58 (*Ackermans en Van Haaren*)². The consolidated total assets of the controlling holding company ranges between 35 mio € (*Floridienne*) and 3,789 mio € (*Almanij*). Table 1 also reports the number of hierarchical levels in the group. We consider the ultimate parent company as level number one, its subsidiaries (based on the consolidation criterium) as number two, and so on. Most groups only have two levels, which means that none of the subsidiaries consolidated by the holding company had a consolidated annual financial statement itself. Three groups (*Compagnie Nationale à Portefeuille*, *Mitiska* and *Solvac*) had three levels, four groups (*Ackermans en Van Haaren*, *Auximines*, *Compagnie Benelux Paribas* and *Financière de Tubize*) had four levels, and one group (*Almanij*) had five levels.

We also differentiate between diversified groups and focused groups, using the classification system of Rumelt (1974), which is widely used in the strategic management literature (Martin and Sayrak, 2003). Rumelt considers a company or a group to be focused if at least 70% of the group's activities were part of the largest group of activities that are related through a common skill, resource, market or purpose; otherwise it is classified as diversified³. Diversification measures in finance research are commonly based on the SIC-classification. While such measures are arguably more objective than the Rumelt classification, in this paper we could not use SIC-based measures because for some (foreign) group subsidiaries there was no information on the industry in which they operated. Moreover, as Martin and Sayrak (2003) note, diversification measures based on SIC codes are to some extent also based on subjective choices (such as the level of refinement that should be used when counting business

² For most groups the number of sample companies is less than the total number of companies they controlled because foreign companies, financial companies and companies for which only an abbreviated financial statement was available were left out of the sample

³ The cut-off point of 70% is based on the observation that the proportion of the main activity in the total activities generally is either between 80% and 100% or less than 60%, but seldom between 60% and 80%.

involvement), and their reliability depends on the correctness and internal consistency of the SIC system.

Following Rumelt (1974), we classified nine groups (150 companies) as diversified groups and seven groups (97 companies) as focused groups. Obviously, determining the relative importance of “the largest group of activities that are related through a common skill, resource, market or purpose” requires some judgement, but for most groups outlining this group of activities turned out to be quite straightforward. However, for three groups (*Financière de Tubize*, *Société Financière des Caoutchoucs*, *Solvac*) the classification may be disputable. We categorized these groups according to our judgment, but as a robustness check we re-estimated all regressions reported in this paper which consider differences between focused groups and diversified groups with the alternative classification. The alternative classification never affected our results.

To identify stand-alone Belgian companies, we first selected “independent” companies from the Belfirst-DVD of Bureau Van Dijk. Bureau Van Dijk defines independent companies as any company with shareholders, none of which having more than 24.9% of direct or total ownership. From the resulting list we excluded financial companies, and companies for which only an abbreviated financial statement was available. We also excluded all companies that reported group liabilities, group receivables or group guarantees. The purpose of this last restriction was to remove companies that are misclassified as independent by Bureau Van Dijk.

Our final sample includes 2,254 companies, of which 247 companies were categorized as group companies and 2007 companies as stand-alone companies. Almost all companies in our sample were private companies: there were only nine listed companies, which all belonged to a group.

4. VARIABLES

With the exception of the group measures (group affiliation, diversified group, and group size), all variables are based on data from the Belfirst-DVD of Bureau Van Dijk. The accounting data on this DVD come from the *unconsolidated* financial statements deposited at the National Bank of Belgium.

Performance measures. We use the return on assets as a measure of profitability. Return on assets avoids distortions in the measurement of profitability due to the firms' financing decisions, and captures profitability of the firm as a whole. As most companies in our sample are not publicly traded, we cannot use stock market based profitability measures. Joh (2003) argues that accounting profitability is likely to be a better performance measure than stock market based measures because (a) stock prices are less likely to reflect all available information when the stock market shows inefficiency, (b) a company's accounting profitability is more directly related to its financial viability than is its stock market value, and (c) accounting measures allow to evaluate the performance of privately held companies as well as that of publicly traded companies. *Profitability* in year t is defined as earnings before interest and taxes in year t , divided by total assets at the beginning of year t .

Group measures. To distinguish between affiliated companies and stand-alone companies, we use a dummy variable *Group Affiliation*, which is one for companies affiliated with a group in 2001, and zero for other companies. There may be significant differences in the size of the holding groups considered in our study. We therefore also consider the variable *Group Size*, which is the logarithm of consolidated total assets of the ultimate listed holding company in 2001. *Diversified group* is a dummy which equals one if the company belongs to a diversified group (see section 3), and zero otherwise.

The impact of intra-group financing on company performance is analyzed by including variables on intra-group borrowing and lending. We investigate the impact of (a) *Group Receivables*, which are long-term and short-term receivables from the group at the beginning of year t , divided by total assets at the beginning of year t ; (b) *Group Liabilities*, which are long-term and short-term liabilities to the group at the beginning of year t , divided by total assets at the beginning of year t ; (c) *Received Group Guarantees*, which are the guarantees given or irrevocably promised by the group as security for debts or commitments of the company at the beginning of year t , divided by total assets at the beginning of year t ; and (d) *Given Group Guarantees*, which are guarantees given or promised by the company itself to support other group companies at the beginning of year t , divided by total assets at the beginning of year t . In Belgium it is mandatory for companies which have to deposit their financial statements in a complete format to report this group financing information in the notes.

We measure the net borrowing/lending position of a company towards the group to which it belongs by the variable *Net Group Financing*, which is defined as (Group Liabilities plus

Received Group Guarantees) minus (Group Receivables plus Given Group Guarantees). If Net Group Financing is positive, this means the company is a net borrower from the group; if it is negative, the company is a net lender to the group. Because of insufficient information, we are not able to take into account intra-group trade and intra-group financing through investments in equity.

Control variables. We also include a set of variables to capture company specific characteristics that may influence company performance: company size, company age, leverage, company growth and industry. *Log(size)* is the logarithm of total assets at the beginning of the year. Larger companies may benefit from economies of scale and may be less financially constrained. *Log(age)* is the logarithm of number of years since the company was established. Older, more stable and mature companies are expected to have lower profitability. *Leverage* is measured as total debt to total assets, both at the beginning of the year. On the one hand, debt may yield a disciplinary effect when free cash flows exist, as a rise in debt increases default risk (Jensen, 1986). Companies can reduce wasteful investments and increase performance to secure their survival. On the other hand, a higher leverage may increase conflicts of interest between equity holders and creditors. In highly leveraged companies, the equity holders with limited liability may encourage the company to take excessive risks (Stiglitz and Weiss, 1981). Our *company growth* measure is sales growth, defined as the logarithm of the ratio of the current to previous year's sales. High growth companies are expected to be more profitable. In order to account for the differences in the nature of assets among companies in our sample, we include the ratio of *fixed financial assets* to total assets. Fixed financial assets are shares in other (mainly affiliated) firms, intended to contribute to the activities of the firm that holds them, by establishing a lasting and specific relationship, and loans that were granted with the same purpose. For some firms in our sample

such assets are a significant part of total assets. We also include industry dummies in the model to capture possible industry effects. However, the coefficient estimates for these industry dummies will not be reported.

For each company, variables were calculated as averages over the period 1997-2004 (see also section 5), except for group affiliation, group diversification and group size, which were based on information for 2001. We only considered company-years which fulfilled the following criteria concerning the accounting data: (1) the company has a “normal” legal status in year t , (2) the age of the company is at least one in year t , and (3) sales and total assets are positive in year t and $t-1$. In each year we also removed the company-years with the highest or lowest 1% outlying values for the performance measure from the sample, in order to exclude outliers.

Insert Table 2 about here

Table 2 provides descriptive statistics for the full sample (panel A) and for group companies and stand-alone companies separately (panel B). Overall, the mean return on assets is a meager 1.97% (median is 2.04%). Profitability is significantly higher for stand-alone companies (2.08%) than for group companies (1.07%). The mean sales growth is even negative at -0.01, and it is not significantly different for group companies and stand-alone companies. Group companies are significantly larger and younger than stand-alone companies, but their average leverage does not differ from that of stand-alone companies. For the group companies, net group financing as a proportion of total assets is on average +0.14

(median is +0.02), which means that the typical group company in the sample is a net borrower from the group. Group liabilities play an important role in the financing of group companies: group liabilities finance on average 22% of total assets (median is 8%). Group receivables are on average 11% of total assets (median is 4%). The median group company did not provide group guarantees, nor did it receive any group guarantees. However, the large standard deviation shows that for some companies group guarantees play an important role.

5. REGRESSION RESULTS

In our sample, there is variation in both the cross-section and time dimensions. One might be tempted to pool the data and estimate a fixed-effects model to exploit all the variation in our panel data set. However, fixed-effects estimation is not possible, since Group Affiliation, which is the central variable in our study, is itself a fixed effect. A Hausmann test rejected the use of a Variance Components model. Moreover, Chirinko and Elston (2006) point to substantial problems in estimating the temporal dynamics in a model such as ours. We therefore rely on OLS on means estimation, where we average the variable values over the 1997-2004 period, so that for each company there is only one profitability, total assets, leverage and so on. We control for the fact that for some companies in the period considered there is no company-year observation in each year by using weighted regressions, where we use the number of observations per company as weights.

(i) Profitability

Insert Table 3 about here

Table 3 presents regression results on the determinants of profitability. In regression (1), we investigate whether group companies are more profitable than stand-alone companies. The results show a negative coefficient of -1.60 for the group affiliation dummy, which is statistically significant at the 1% level. This implies that companies affiliated with a Belgian holding company underperform in regard to stand-alone companies. This is in contrast to the results of some studies on business groups in emerging markets like India or Chile, but it is consistent with results of studies on Japanese Keiretsu.

All the company specific control variables are significant. Company size and sales growth have a significant positive coefficient, indicating that larger companies, who may be less financially constrained and may benefit from economies of scale, and companies with growth potential are more profitable. Consistent with the Pecking Order Theory, highly leveraged companies have lower profitability. Companies with a higher proportion of financial fixed assets to total assets have a higher EBIT over total assets.

Next, we focus on the subsample of group companies. In the second regression, we investigate whether the impact of group affiliation depends on whether the company belongs to a diversified group or a focused group by including the diversified group dummy, but the coefficient of this dummy is insignificant ($p=0.962$). In regression (3) we add group size, but again the coefficient is insignificant ($p=0.819$). These results suggest that the negative impact of group affiliation does depend neither on the focus of the group, nor on group size. As for the control variables, profitability of group companies depends on company size and leverage, but not on company age, sales growth, or the proportion of financial fixed assets.

Insert Table 4 about here

Table 4 presents regression results on the relation between profitability and intra-group financing. When we include net group financing in regression (4), this variable is significantly negative at the 1% level. This implies that a net inflow of intra-group financing is associated with lower profitability, and a net outflow of intra-group financing is associated with higher profitability. In regression (5) an extra variable is included which incorporates the restriction that net group financing must be positive. This additional variable is not significant, which suggests that the relation between net group financing and profitability does not depend on net group financing being positive or negative. The more funds a company gets from the group, the lower its profitability, and the more funds a company transfers to the group, the more profitable it is. So it seems that through the internal capital market, funds are transferred from good performing to poorly performing companies in the group. A similar result is found by George et al. (2004) for Indian business groups. They observe a lower performance for group companies compared to stand-alone companies, and their results indicate that this underperformance is caused by inefficient profit redistribution.

In regression (6), we include each component of net group financing separately. Both group receivables and group liabilities are significant: there is a positive relation between group receivables and performance, and a negative relation between group liabilities and performance. Group guarantees show no significance. These results again confirm that transferring money to the group is associated with higher profitability and receiving money from the group with lower profitability.

(ii) Profit Volatility

Even if group affiliation reduces profitability, groups may be beneficial for affiliated companies because of the risk sharing potential among affiliated companies. This conventional wisdom is confirmed by the literature on Japanese Keiretsu. Caves and Uekusa (1976) and Nakatani (1984) for example provide empirical evidence that the variance of operating profitability is lower for group affiliated than for unaffiliated companies. Yafeh's (2003) survey suggests that of all roles attributed to Japan's corporate groups, risk sharing may be the most substantiated one. The possibility of risk sharing in business groups is consistent with economic theory because, in the presence of capital market imperfections, bankruptcy costs may be substantial. For example, Sheard (1989), Hoshi, Kashyap and Scharfstein (1990) and Hoshi and Kashyap (2001) document cases in which banks rescued distressed affiliates. Another rationale for risk sharing is that companies maximize the joint utility of employees, financial institutions, stockholders and management (Aoki 1984, 1988). It could therefore be argued that while Belgian group companies have lower profits than stand-alone companies, they also bear less risk.

Khanna and Yafeh (2005a) investigate risk sharing for business group affiliates in a number of different countries. We use their methodology to test whether the group companies in our sample have lower profit volatility than stand-alone companies. They consider size, profitability and industry dummies as determinants of profit volatility. For consistency with our earlier regressions, we also include log(age), leverage, sales growth and financial fixed assets. Profit volatility is measured by the standard deviation of EBIT over total assets over the period 1997-2004.

Insert Table 5 about here

Regression results are reported in Table 5. Contrary to the expectation that group affiliation reduce the volatility of profits, the results of regression (7) suggest that profits of group companies are *more* volatile than those of stand-alone companies. In regression (8) we added the interaction variable between the group affiliation dummy and the diversified group dummy. The coefficient of this variable is significant ($p=0.073$) and negative, consistent with the notion that diversification reduces risk. In regression (9) we include group size. The coefficient is almost significant at the 10% level ($p=0.105$), which suggests that companies in larger groups are less risky than companies in smaller groups.

Khanna and Yafeh (2005a), who estimate a similar equation for ten different developing countries, find a significant positive relation between group affiliation and profit volatility only for India (1990-1997). However, they also find that in India group affiliation is significantly positively related to the return on assets. Our results suggest that group companies are not only less profitable than stand-alone companies, but the profits of group companies are also more volatile than those of stand-alone companies. An explanation for the finding that profits of group companies are significantly more volatile could be that group companies tend to choose more risky investments than stand-alone companies, because they are “insured” by the group (cf. Khanna and Yafeh, 2005a). This explanation is consistent with our finding that group members receive more intra-group financing if they are less profitable.

6. HOW CAN BUSINESS GROUPS ENDURE?

If companies affiliated to Belgian business groups tend to be less profitable than stand-alone companies and group affiliation does not reduce risk, this raises the question why these business groups continue to exist. One would expect that an organizational form which is not adapted to the modern world would disappear.

(i) Inertia and Political Influence

Some authors propose cultural arguments, which relate value and belief systems to organizational form, to explain the continuing existence of business groups (e.g. Chung, 2001). Collin (1998), who studies Swedish business groups, argues that these groups may have accumulated sufficient resources during the period of their success, making them capable of surviving quite independently from their present economic (in)efficiency. As such business groups may be considered institutional “left-overs”.

Some recent studies provide a political explanation for the endurance of business groups in developed countries. According to Collin (1998) and Högfeltdt (2004), Swedish groups are supported by the government because they possess a governance capacity that the government can make use of. Morck et al. (2005) point out that in many countries, business groups are owned by a limited number of wealthy families. Groups allow this elite to control a large part of the corporate sector. This has also been the case in Belgium through the 20th century. In an underdeveloped financial system, business groups give the elite privileged access to finance. However, it can be expected that financial development destroys this competitive advantage. Indeed, better disclosure rules and enforcement in a developed financial market reduces the

relative importance of the collateral and reputation of the business elite, while permitting newcomers to enter and compete away profits. The business elite will therefore have strong incentives to lobby politicians for policies that hinder institutional development of capital markets, erect a variety of entry barriers, and preserve the status quo. Political influence might also be instrumental to owner's private benefits of control. Rajan and Zingales (2003) point out that many countries that currently have small stock markets had large and dynamic stock markets a century ago. Belgium is a typical example. They propose that in these countries, a first generation of corporate insiders raise money from public investors, gain control of most of the corporate sector, and then later lobby for policies that cause financial market atrophy.

Consistent with the political influence hypothesis, Van Zundert (2005) finds that through the 20th century, most major Belgian companies had significant political connections. He investigates the extent to which (former) members of parliament and (former) cabinet ministers were a director of the most important listed companies for five years of the 20th century (1912, 1929, 1955, 1971, and 2000), and finds that more than half of the companies in his sample had at least one "political" director. Moreover, most holding companies and financial institutions, which are the key members of Belgian business groups, had "political" directors, who often were former cabinet ministers.

(ii) Taxes

An alternative explanation for the lower profitability of group companies is that there are some benefits to business groups which are not incorporated in the metric we use. An important benefit could be tax reduction through intra-group income shifting. A number of studies have found that multinational corporations and internationally-diversified business

groups make use of tax differences across countries through intra-company transactions to reduce the overall tax rate (e.g. Collins et al., 1998; Jacob, 1996; Mills and Newberry, 2004; Rego, 2003). Income shifting between business group members operating in the same jurisdiction can also result in tax minimization because generally, tax codes treat gains and losses asymmetrically: a firm has to pay taxes if it makes a profit, but the government does not pay the firm if it makes a loss. The tax code's carry-forward (backward) provisions reduce this disadvantage but, however, do not eliminate it. Hence, two or more affiliated firms with a differential tax status can minimize their overall tax load by shifting income from profitable entities to loss-making entities (Scholes et al., 2002). Ferris et al. (2003) indeed find that Korean Chaebol member firms enjoy lower tax burdens than stand-alone firms. The results of Gramlich et al. (2004) suggest that lower effective tax rates of Japanese Keiretsu firms result from intra-group income shifts.

In Belgium, there is no consolidated group taxation, but companies belonging to a group are taxed individually. This provides a strong incentive for groups to shift income from group companies facing a positive marginal tax rate – i.e. pay additional taxes when earning one additional currency unit of income – to tax-exempt group members⁶. Consistent with this hypothesis, Beuselinck and Deloof (2006) find that group companies have a lower effective tax rate than stand-alone companies (controlling for various company characteristics). Their results, which are based on a sample very similar to ours, suggest that this lower tax rate results from intra-group income shifting⁷. When we re-estimate regression (1) with the return

⁶ Khanna and Yafeh (2005) point to the possibility that governments favour business groups because it is easy to collect taxes from them. However, it seems unlikely that this argument applies to present-day Belgium, which is characterized by a relatively strong institutional framework. Furthermore, in Belgium it is not the group which is taxed, but individual group members.

⁷ The findings of Beuselinck and Deloof (2006) raise the concern that the observed lower profitability of group companies as compared to stand-alone companies might to some extent be a result of earnings management in business groups (see also Kim and Yi, 2005, on earnings management in Korean Chaebol groups). As a

on equity (defined as net income *after taxes* over equity) as the dependent variable, the group affiliation coefficient is not significant anymore ($p = 0.947$; results available from the authors upon request)⁸. This finding is consistent with the idea that the lower operating profitability of group companies is compensated by lower taxes. However, we have to be careful with the interpretation of this finding, as our sample does not include non-Belgian subsidiaries or financial subsidiaries. We do not have a complete picture of taxes paid and/or saved by business groups.

7. CONCLUSION

In this study, we analyzed the profitability of companies affiliated to Belgian holding groups, as compared to the profitability of stand-alone companies. Our results show that group companies in Belgium are less profitable than stand-alone companies, and their profits are more volatile than those of stand-alone companies. Moreover, we find a negative relationship between net intra-group financing and the profitability of group companies, which suggests that internal capital markets in Belgian business groups transfer funds from good performers to less profitable group companies.

Our results are not surprising, as they confirm those of similar studies on Japanese Keiretsu groups and Indian business groups. In an environment with strong institutions and well-developed markets, the potential benefits of business groups are unlikely to outweigh the

robustness check we re-estimated regression (1) with operating cash flow over total assets as the dependent variable. In the previous section we did not focus on operating cash flow/total assets because this is a less accurate profitability measure than EBIT/total assets, and it is plagued by many outliers in our sample. However, operating cash flow is less likely to be affected by earnings management than EBIT/total assets. After removing outliers, the negative group affiliation coefficient remains large and significant if operating cash flow/total assets is the dependent variable (results available from the authors upon request).

⁸ All group measures reported in the paper are insignificant if the return on equity is the dependent variable.

costs. An intriguing question is why inefficient business groups are able to survive. There may be a cultural preference for business groups, business groups may live on resources accumulated in the past, and they may rely on political support. Another explanation would be that the lower operating profitability of individual group members is actually compensated by tax benefits at the group level, through intra-group income shifting. It is clear that further research is needed on this point.

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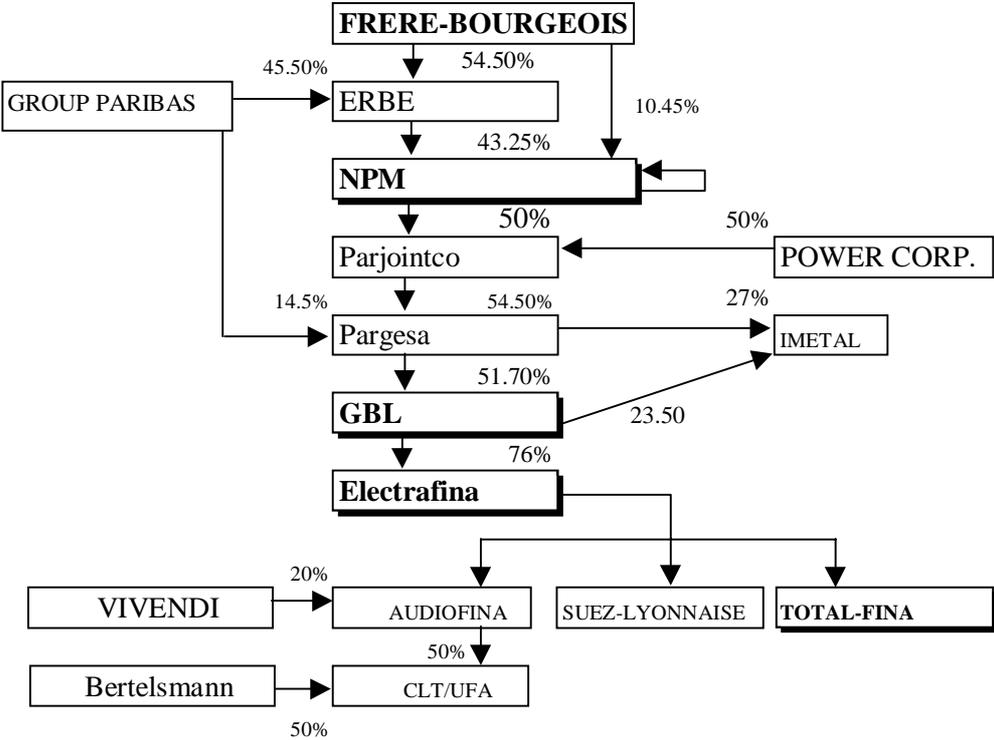
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FIGURES AND TABLES

FIGURE 1

Simplified version of the structure of Albert Frère’s pyramidal empire in 1998.



Source : Annual report Nationale Portefeuille Maatschappij, 1998

Note: Bold face names refer to holding companies within the group structure

Table 1**Groups Represented in the Sample**

This table report characteristics for the 16 business groups considered in this study.

	Holding Company	No. of Companies in Sample	Consolidated Total Assets (in 1,000 €)	No. of Group Levels	Diversified or Focused
1	Accentis	27	64,350	2	F
2	Ackermans en Van Haaren	58	1,007,952	4	D
3	Almanij	41	3,788,864	5	F
4	Atenor	10	103,890	2	D
5	Auximines	2	398,615	4	D
6	Bois Sauvage	2	329,217	2	D
7	Compagnie Benelux Paribas	26	3,448,940	4	D
8	Compagnie Nationale à Portefeuille	32	2,662,060	3	D
9	Deficom	2	78,739	2	F
10	Financière de Tubize	4	486,999	4	F
11	Floridienne	4	35,275	2	D
12	Mitiska	17	117,005	3	F
13	SCF	2	41,924	2	F
14	Société Financière des Caoutchoucs	4	51,543	2	F
15	Solvac	14	206,056	3	D
16	Unibra	2	66,611	2	D
	Total:	247			

Table 2**Descriptive Statistics**

This table reports descriptive statistics and correlations for a sample of 2,254 companies in the period 1997-2004. *Profitability* is measured by EBIT over total assets (expressed as a percentage); *log(size)* is the log of total assets; *log(age)* is the log of the number of years since the company was established; *leverage* is the ratio of total debt to total assets; *sales growth* is $\log[\text{sales in year } t / \text{sales in year } t-1]$; *financial fixed assets* is the ratio of financial fixed assets over total assets; *group liabilities* are long-term and short-term liabilities to the group over total assets; *received group guarantees* are the guarantees given or irrevocably promised by the group as security for debts or commitments of the company over total assets; *group receivables* are long-term and short-term receivables from the group over total assets; *given group guarantees* are guarantees given or promised by the company itself to support other group companies over total assets; *net financing from group* is group liabilities plus received group guarantees minus group receivables and given group guarantees. ***, **, *: denote significance at the 1%, 5%, 10% level respectively; n.s.: not significant. significance levels are based on the Z-test.

Panel A – Full Sample

Variable	Mean	Median	St.dev.	Minimum	Maximum
Profitability	1.97%	2.04%	3.88%	-32.41%	25.25%
Log(size)	8.64	8.51	1.31	1.70	15.47
Log(age)	2.70	2.79	1.00	0.00	4.62
Leverage	0.70	0.75	0.30	0.00	5.03
Sales growth	-0.01	0.03	0.42	-10.10	5.48
Financial fixed assets	0.04	0.00	0.13	0.00	0.99

Panel B – 247 Group Companies and 2,007 Stand-Alone Companies

	Group companies			Stand-alone companies			Difference in means
	Mean	Median	St.dev.	Mean	Median	St.dev.	
Profitability	1.07%	1.90%	5.76%	2.08%	2.06%	3.57%	***
Log(size)	9.01	8.86	1.87	8.60	8.50	1.22	***
Log(age)	2.29	2.42	1.11	2.74	2.85	0.97	***
Leverage	0.68	0.68	0.49	0.70	0.76	0.27	n.s.
Sales growth	-0.00	0.034	0.63	-0.01	0.03	0.39	n.s.
Financial fixed assets	0.15	0.03	0.24	0.03	0.00	0.10	***
Net financing from group	0.14	0.02	0.54				
Group liabilities	0.22	0.08	0.46				
Received group guarantees	0.06	0.00	0.25				
Group receivables	0.11	0.04	0.17				
Given group guarantees	0.03	0.00	0.18				

Table 3
Determinants of Profitability – Group Characteristics

This table reports results of weighted regressions for a sample of 2,254 companies in the period 1997-2004. *Profitability* is measured by EBIT over total assets (expressed as a percentage); *group affiliation* is a dummy which equals one if the company belongs to a group, and zero otherwise; *group size* is the log of consolidated total assets of the controlling holding company; *diversified group* is a dummy which equals one if the company belongs to a diversified group, and zero otherwise; *log(size)* is the log of total assets; *log(age)* is the log of the number of years since the company was established; *leverage* is the ratio of total debt to total assets; *sales growth* is $\log[\text{sales in year } t / \text{sales in year } t-1]$; *financial fixed assets* is the ratio of financial fixed assets over total assets. All regressions include industry dummies. *P*-values, based on heteroscedasticity-consistent standard errors are in parentheses below each coefficient; * denotes significance at the 10% level; ** denotes significance at the 5% level; *** denotes significance at the 1% level.

Sample:	(1) All Companies	(2) Group Companies	(3) Group Companies
Constant	-0.48 (.420)	-1.80 (.461)	-2.32 (.441)
Group affiliation	-1.60*** (.000)		
Diversified group		0.03 (.962)	
Group size			0.04 (.819)
Log(size)	0.48*** (.000)	0.63*** (.000)	0.62*** (.001)
Log(age)	-0.20** (0.015)	0.38 (0.243)	0.39 (0.238)
Leverage	-1.40*** (0.000)	-3.06*** (0.000)	-3.08*** (0.000)
Sales growth	1.77*** (.003)	0.53 (.396)	0.52 (.395)
Financial fixed assets	3.01*** (.000)	0.17 (.877)	0.18 (.869)
Adjusted R ²	0.09	0.15	0.16
No. of observations	2,254	247	247

Table 4
Determinants of Profitability – Intra-group Financing

This table reports results of weighted regressions for a sample of 2,254 companies in the period 1997-2004. *Profitability* is measured by EBIT over total assets (expressed as a percentage); *group affiliation* is a dummy which equals one if the company belongs to a group, and zero otherwise; *group liabilities* are long-term and short-term liabilities to the group over total assets; *received group guarantees* are the guarantees given or irrevocably promised by the group as security for debts or commitments of the company over total assets; *group receivables* are long-term and short-term receivables from the group over total assets; *given group guarantees* are guarantees given or promised by the company itself to support other group companies over total assets; *net financing from group* is group liabilities plus received group guarantees minus group receivables and given group guarantees; *log(size)* is the log of total assets; *log(age)* is the log of the number of years since the company was established; *leverage* is the ratio of total debt to total assets; *sales growth* is log [sales in year t / sales in year t-1]; *financial fixed assets* is the ratio of financial fixed assets over total assets. All regressions include industry dummies. *P*-values, based on heteroscedasticity-consistent standard errors are in parentheses below each coefficient; * denotes significance at the 10% level; ** denotes significance at the 5% level; *** denotes significance at the 1% level.

Sample:	(4) Group Companies	(5) Group Companies	(6) Group Companies
Constant	-2.01 (.356)	-2.00 (.357)	-2.01 (.356)
Net financing from group	-2.02** (.027)	-2.70* (0.097)	
Net financing from group if positive		0.86 (0.673)	
Group liabilities			-2.92** (.015)
Received group guarantees			-0.83 (.474)
Group receivables			2.45* (.078)
Given group guarantees			1.42 (.313)
Log(size)	0.58*** (.001)	0.57*** (.001)	0.58*** (.002)
Log(age)	0.36 (0.255)	0.37 (0.252)	0.37 (0.253)
Leverage	-1.31 (0.178)	-1.33 (0.172)	-0.66 (0.554)
Sales growth	0.52 (.389)	0.54 (.378)	0.46 (.458)
Financial fixed assets	0.87 (.415)	0.95 (.363)	1.20 (.294)
Adjusted R ²	0.17	0.16	0.16
No. of observations	247	247	247

Table 5
Determinants of Profit Volatility

This table reports results of weighted regressions for a sample of 2,181 companies in the period 1997-2004. Profit volatility is measured by the standard deviation of EBIT over total assets over the period 1997-2004; *group affiliation* is a dummy which equals one if the company belongs to a group, and zero otherwise; *diversified group* is a dummy which equals one if the company belongs to a diversified group, and zero otherwise; *profitability* is EBIT over total assets (expressed as a percentage); *log(size)* is the log of total assets; *log(age)* is the log of the number of years since the company was established; *leverage* is the ratio of total debt to total assets; *sales growth* is $\log[\text{sales in year } t / \text{sales in year } t-1]$; *financial fixed assets* is the ratio of financial fixed assets over total assets. All regressions include industry dummies. *P*-values, based on heteroscedasticity-consistent standard errors are in parentheses below each coefficient; * denotes significance at the 10% level; ** denotes significance at the 5% level; *** denotes significance at the 1% level.

Sample:	(7)	(8)	(9)
	All companies	Group companies	Group companies
Constant	8.70*** (.000)	13.84*** (.000)	16.96*** (.000)
Group affiliation	2.68*** (.000)		
Diversified group		-1.04* (0.073)	
Group size			-0.29 (.105)
Profitability	-0.11*** (.001)	-0.22*** (.001)	-0.22*** (.003)
Log(size)	-0.63*** (.000)	-0.73*** (.000)	-0.71*** (.000)
Log(age)	-0.10 (.123)	-0.24 (.399)	-0.27 (.359)
Leverage	0.49 (.110)	1.42** (.029)	1.49** (.029)
Sales growth	-1.18*** (.000)	0.31 (.708)	0.26 (.752)
Financial fixed assets	3.28*** (.000)	5.34*** (.000)	5.34*** (.000)
Adjusted R ²	0.21	0.18	0.18
No. of observations	2,181	233	233