Voluntary firm restructuring: why do firms sell or liquidate their subsidiaries?

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Abstract This paper examines why companies decide to divest a subsidiary in a corporate environment characterised by concentrated ownership, using a unique dataset of non-listed Belgian subsidiaries. The results of the binomial logit analyses are consistent with the idea that management will intervene in order to improve the controlling firm's focus or when subsidiary performance imposes a burden on the group's financial situation. Especially when blockholders hold more than 75% of the shares, these motives drive the divestiture decision. At lower levels of ownership concentration, these hypotheses cannot explain the higher divestiture likelihood, which supports the agency hypothesis. Once the divestment decision has been taken, the choice has to be made between a sale and liquidation. The logit analysis reveals that although selling a subsidiary seems the preferred option, liquidation is likely when the subsidiary is small, active in a sector with few competitors and when financial distress is eminent.

Keywords Divestiture · Liquidation · Subsidiaries · Ownership concentration

JEL Classification G33 · G34

1 Introduction

Corporate restructuring can happen in many different ways, including acquisitions and divestitures. [John et al. \(1992\)](#) note that a considerable amount of this restructuring activity happens through asset sales, involving the sale of plants, divisions or subsidiaries. Since financial data about the assets under control are usually lacking, most

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research tests the hypotheses advanced using parent firm data. This paper, however, uses subsidiary data, to examine how subsidiary characteristics impact the decision whether or not to keep a certain division under control. Since Belgian companies, both listed and non-listed firms, are obliged to publish their financial statements, I am able to compose a unique data set. This approach overcomes the reporting problems associated with the use of segment data and allows additional insight in the hypotheses brought forward. Even though previous research has shown that financial constraints will induce restructuring, it remains unclear whether the worst performing activities will also be the ones divested. Additionally, the detailed accounting data provide insight into the importance of subsidiary characteristics in the choice of restructuring method.

Studying divestitures using Belgian firm data also offers the opportunity to examine the motives underlying the restructuring decision in a corporate environment characterised by concentrated ownership. On the Brussels stock exchange, the sum of the share stakes held by large shareholders amounts to, on average, more than 65% and the largest direct shareholder controls on average 43% of the voting rights (Renneboog 2000). This kind of concentrated ownership is typical for most countries in Continental Europe and many other countries around the world as has been demonstrated by several authors (e.g. La Porta et al. 1999; Claessens et al. 2002). In this setting, the dominant shareholder has the power and the incentive to monitor management. As a result, management could be forced to divest assets when it is in the interest of the shareholders. Motives brought forward previously relate to the desire to focus and remove negative synergies (Hite et al. 1987; John and Ofek 1995; Berger and Ofek 1996; Çolak and Whited 2007), relieve financial constraints (John et al. 1992; Lang et al. 1995) or management's willingness to optimise its managerial capabilities (Maksimovic and Phillips 2001; Schlingemann et al. 2002; Maksimovic and Phillips 2002; Yang 2008).

At the same time, however, agency problems of a different nature arise since the controlling shareholder has the power to extract private benefits at the expense of the minority shareholders (Villalonga and Amit 2006). Dominant shareholders might engage in tunneling assets and expropriate minority shareholders. As Johnson et al. (2000) describe, much of this tunneling is legal and can be substantial, even in developed countries such as Belgium. Up till now, it is unclear whether the decision to divest assets is driven by this agency motive or whether it is rather the result of efficient monitoring activity.

In addition to the restructuring decision, management has to choose between the different restructuring methods available.¹ More specifically, the decision could be made to sell assets but if this is not feasible, liquidation of the subsidiary could be an option. Therefore, I examine in this paper what factors determine the choice between these two alternatives. Determining elements could be either industry specific, such as

¹ Whereas selling off assets represents one way of restructuring, a firm can use alternative ways including equity carve-outs and spin-offs. A comparison of the considerations driving each of the three restructuring mechanisms was made by eg. Slovin et al. (1995). However, equity carve-outs and spin-offs are exceptional in Belgium and did not occur in the period considered. Therefore, the literature dealing with these restructuring mechanisms will not be discussed here.

asset liquidity (Shleifer and Vishny 1992; Schlingemann et al. 2002; Kruse 2002), or firm specific, including the subsidiary's financial situation (Pastena and Ruland 1986).

The results of the binomial logit analyses are consistent with the idea that management will intervene in order to improve the controlling firm's focus or when subsidiary performance imposes a burden on the group's financial situation. At the same time, low capital expenditures reflect management's lack of confidence, making a divestiture more likely. Below industry performance of the subsidiary on the other hand, does not initiate management to divest the assets under control. However, these motives do not become more prevalent as blockholders control a higher percentage of the shares. This lends support to the view that agency problems undermine the efficient monitoring of the subsidiaries. Only when more than 75% of the shares are held by blockholders, the controlling shareholders become more sensitive to focus and subsidiary performance. Once the divestment decision has been taken, the choice has to be made between a sale and liquidation. The logit analysis reveals that both industry and firm characteristics play a decisive role. Although selling a subsidiary seems the preferred option, liquidation is likely when the firm is small, active in a sector with few competitors and when financial distress is eminent. Controlling all voting rights also seems to be crucial in the liquidation decision.

The rest of the paper is organised as follows. The next section describes the theory and hypotheses about the motives for a divestiture and the role of agency problems in this decision and the factors that determine the choice of restructuring method. Section 3 describes the data used in the paper. The following section, Sect. 4, presents and discusses the results of the binomial logit analyses. Finally, Sect. 5 shows the conclusions of the paper.

2 Theory and hypotheses

In order to maximize shareholder value, management should compose an optimal portfolio of activities and adjust the organizational structure if necessary. Therefore, each subsidiary should be scrutinized to determine whether it is a likely candidate for a divestiture. Dependent on the underlying motive of management, the subsidiary's characteristics will play a crucial role in this decision process. Besides the subsidiary characteristics, the ownership structure of the controlling firm will have to be considered in the restructuring decision. Furthermore, once the decision is made that certain activities no longer match management's strategy, a restructuring method will have to be chosen.

2.1 Keep them or leave them?

Why does a firm decide to divest part of its activities? A first hypothesis states that increasing focus motivates divestitures. Since unrelated assets may interfere with the seller's other assets, eliminating the resulting negative synergies leads to higher focus and better performance of the remaining assets. John and Ofek (1995) report that the industry-adjusted cash-flow performance of the remaining assets improves significantly after a focus-increasing divestiture. Furthermore, the seller's abnormal return

is higher as the divested division becomes less related. [Wernerfelt and Montgomery \(1988\)](#) and [Comment and Jarrell \(1995\)](#) also find that increases in focus result in performance improvements. Another approach to measure focus looks at the diversity of the investment opportunity set within a firm. [Jongbloed \(1994\)](#) argues that firms that combine units with different investment opportunity sets are more likely to divest units by means of a spin-off or an equity carve-out. He also predicts that the units that will be divested are either the ones with the fewest or the highest growth opportunities. This way the intra-firm variation of the investment opportunities will be reduced most strongly. Using similar arguments, [Rajan et al. \(2000\)](#), demonstrate that the mis-allocation of investment funds is related to the diversity of investment opportunities. As the variance of the investment opportunities increases, transfers from high Q to low Q divisions become more likely.² So, if the focus motive is prevalent, the probability of a subsidiary being divested will depend on its relatedness with the other members of the group. If there are few synergies between a subsidiary and the controlling firm or the other members of the group it is likely to be restructured. The subsidiaries that differ most from the others will thus be the principal candidates for being sold or being liquidated under this focus hypothesis.

An alternative explanation for the divestiture activity observed states that a company will sell or liquidate a subsidiary when it is subject to financial constraints. This is in line with [John et al. \(1992\)](#) and [Kang and Shivdasani \(1997\)](#) who focus on voluntary restructurings made in response to declining performance. They find that firms respond to financial distress using predominantly contraction policies, which refers primarily to asset sales, divestitures, spin-offs, employment reduction and emphasis on core business. [Lang et al. \(1995\)](#) also argue that management will pursue its own objectives and will sell assets if that provides them with the cheapest funds. They will do so when raising funds on the capital markets is too expensive because of high leverage and/or poor performance. Consistent with this, they document that poor operating results of a subsidiary are mentioned by 26% of the firms in their sample as a motivation for divestitures.³ This implies that a firm suffering from financial constraints will divest or liquidate those subsidiaries that aggravate the financial problems. Subsidiaries draining resources because of negative profits or negative cash flows will be likely candidates for restructuring under the financial constraints hypothesis.

The final hypothesis for divestitures considered here argues that management will search for those assets that best fit their abilities and can be run efficiently. Under the managerial capabilities motive, or the efficiency motive as it is called by [Schlingemann et al. \(2002\)](#), management will try to use its skills and abilities optimally and will restructure those subsidiaries that are not or no longer compatible. In a related paper, [Matsusaka \(2001\)](#) views diversification as a matching/search process. Central in his model is the idea that firms consist of organizational capabilities that can be used in

² [Çolak and Whited \(2007\)](#) confirm this improvement in conglomerate investment efficiency but attribute this finding to endogeneity and measurement error.

³ [John and Ofek \(1995\)](#) do not support the financial constraints hypothesis since debt repayment has no marginal explanatory power beyond that of increasing focus. Furthermore, [Slovins et al. \(1995\)](#), find a significantly positive abnormal return for the sellers in their sample that do not retain the proceeds, which contrasts the findings of [Lang et al. \(1995\)](#).

multiple industries. If performance in the existing businesses goes down, it becomes interesting to start looking for other opportunities instead of liquidating. Hence, more firms entering the sector or diminishing profit margins may induce a firm to diversify and eventually abandon its current activities. Similarly, [Maksimovic and Phillips \(2001, 2002\)](#) develop a model in which firms face decreasing returns to scale from managerial ability. Their empirical evidence suggests that the productivity of a segment, as compared to the productivity of the other segments, determines the segment's growth within conglomerates. Under the assumptions of their model, the segments in which management has more firm-specific knowledge will build up a comparative advantage which results in a higher productivity. As a result these segments will grow more whereas growth will be reduced in the less productive segments. From this the authors infer that the size of a segment can be considered a direct proxy for firm ability. The main divisions will be those where the conglomerate is most productive. As a result, conglomerates are more likely to sell assets from peripheral divisions. This probability also increases as the other divisions become more productive as compared to their industry counterparts. In the same vein [Yang \(2008\)](#) develops a model in which firms' investment decisions are driven by productivity shocks. So when a subsidiary performs worse than its industry counterparts, it will be more likely to be divested if the managerial capabilities hypothesis holds.

2.2 Ownership concentration and the divestiture decision

Many Western European countries, including Belgium, are characterized by a high degree of ownership concentration ([La Porta et al. 1999](#)). This widespread incidence of large blockholders entails both benefits and costs. A potential benefit of the presence of a blockholder is the increased monitoring ability. Holding a substantial stake creates an economic incentive to monitor the management intensively and reduce agency costs ([Demsetz and Lehn 1985](#)). As a result, subsidiaries performing badly or activities unrelated to the rest of the group will be likely candidates for a divestiture. At the same time, however, concentrated ownership induces another kind of agency problems. Dominant shareholders may pursue their own interests at the expense of the small shareholders. Especially in countries with poor minority investor protection, as is the case in Belgium, large blockholders have greater ease in extracting firm resources at minority shareholder expense ([La Porta et al. 2002](#)). One way of expropriating these minority shareholders could happen by tunnelling assets ([Johnson et al. 2000](#)). This allows the controlling shareholders to accrue private benefits of control. [Dyck and Zingales \(2004\)](#) show that these private benefits of control are substantial and larger in countries with concentrated ownership. One source of private benefits they identify is the 'psychic' value, which is the value some shareholders attribute to being in control. So although it may be in the interest of small shareholders to divest a subsidiary, controlling shareholders may decide not to because they value the control over these assets higher.

The final impact of concentrated ownership, which includes both its benefits and costs, will be reflected in the firm performance. The empirical evidence yields mixed effects on this issue though. Both [Morck et al. \(1988\)](#) and [McConnell and Servaes](#)

(1990) document a curvilinear relationship between Q and the fraction of stock ownership by insiders. Initially, firm value benefits from increased insider ownership but this effect tends to taper off when ownership concentration becomes large, consistent with the agency argument. When ownership is considered as an endogenous variable, however, Demsetz and Villalonga (2001) find no statistically significant relationship between ownership structure and performance. From this they conclude that diffuse ownership, despite its agency problems, yields compensating advantages. On the other hand, Thomsen et al. (2006) document a negative impact of blockholder ownership on firm performance for Continental Europe. They interpret this as evidence that the interests of blockholders conflict with those of the minority shareholders. Andres (2008) also finds that non-family blockholders either have a negative or a non detectable influence on performance. The evidence that ownership concentration for Continental Europe negatively impacts performance also has implications for the divestment process. Since divestitures can be viewed as a way to eliminate organizational deficiencies to improve future performance, it can be expected that inefficient restructuring lies at the origin of the documented worse performance of firms in which blockholders are present. So, it can be inferred that as ownership concentration increases, its drawbacks outweigh its benefits and restructuring will not happen efficiently.

2.3 Choice of restructuring method

Once the divestiture decision has been made, management has to choose between a sale and liquidation. To my knowledge little research exists, except for Maksimovic and Phillips (2002) that use plant level data, that examines this step in the restructuring decision because of data limitations. The asset sales literature suggests that this choice can be determined by industry-specific factors as well as firm-specific factors. In this decision, ownership concentration is unlikely to play any further role. Once the decision to divest is taken, management will have to look for the optimal solution, with a sale as the preferred option and liquidation in the other case.

Shleifer and Vishny (1992) point out that the possibility of selling assets depends on asset liquidity. If a firm is confronted with financial constraints because of an industry-wide shock, the other firms in the industry will be short of cash reserves too. Since these competitors are the most likely candidates for buying the assets, asset liquidity will be low. The assets may not be sold under these conditions as the price received would be too low as compared to the price desired. Additionally, asset illiquidity will limit the optimal amount of debt in the capital structure. As predicted by their model, Kruse (2002) finds that poorly performing firms are more likely to sell assets if their industry's growth rate is higher. Using the number of transactions in an industry as a proxy for asset liquidity, Schlingemann et al. (2002) empirically confirm that segment liquidity indeed has a significant impact on the probability of being divested. In a related paper, Maksimovic and Phillips (2002) examine how the distribution of assets is influenced by changes in industry demand. They find that both the yearly and the long-run change in industry output significantly affect the probability of plant sales or plant closures. As industry output grows, asset sales become more frequent and the controlling firm is more likely to sell its less productive plants.

If industry demand is low, however, the probability of plant closures increases since it will be optimal to liquidate less productive plants. This evidence thus suggests that industry characteristics will determine whether or not a buyer can be found for a subsidiary involved in a restructuring. If the sector is characterized by high growth, a lot of competitors and thus a lot of potential buyers and/or a lot of transactions, a sale is most likely. In the reverse case, liquidating the subsidiary will be the optimal decision.

Maksimovic and Phillips (2002) find that not only industry demand influences the probability of plant sales and closures but also firm specific factors. More specifically, they document that plant-level operating cash flows are positively related to the probability of selling a plant whereas they are negatively related to the probability of plant closures. Pastena and Ruland (1986), on the other hand, focus on the firm's capital structure and argue that the attractiveness of a takeover candidate decreases as financial distress increases. So higher debt levels may increase the likelihood of a takeover of a subsidiary as was argued by Berger and Ofek (1996), but if they are too high, buyers will no longer be interested. Additionally, high growth opportunities will make a sale of a subsidiary more likely since these would be lost in case of liquidation. So, although I expect the sale of a subsidiary to be the preferred option, finding a buyer could be unlikely in case of a high debt to equity ratio, indications of financial distress or a lack of growth opportunities. In that case, liquidation would be the only alternative left.

3 Data and descriptive statistics

3.1 Data

In this paper I consider all Belgian subsidiaries under control of a listed firm to estimate the impact of the subsidiary's financial characteristics on the decision to divest or retain a certain activity. Data for the listed companies and their subsidiaries were obtained from the database of the National Bank, called 'Balanscentrale', which contains balance sheet data and profit and loss data in accordance with the Royal Decree of January 30, 2001.⁴ for all listed and non-listed non-financial companies in Belgium. The database also has data on all minority and majority blockholdings as well as the NACE-code of all stakes.⁵ In order to be considered, the listed firms should have balance sheet data and data on their subsidiaries available with the 'Balanscentrale' for at least 3 years. This results in a total number of 133 listed firms, which includes companies that have been delisted before 1996 to avoid a survivorship bias. Since banks and insurance companies are not obliged to publish their balance sheet data in the 'Balanscentrale', these firms are not included in the sample. Companies in liquidation are also excluded. The sample was further reduced because of the requirement that

⁴ Royal Decree "tot uitvoering van het Wetboek van vennootschappen". Previously, the Royal Decree of October 8, 1976.

⁵ The NACE-code consists of 4 digits, is similar to the SIC-code and allows a sector classification for the subsidiaries.

only listed firms holding a majority of the cash flow rights in non-financial subsidiaries were to be considered. This resulted in a final number of 87 listed firms (parent firms) whose subsidiaries were investigated in detail. Data on the percentage held by blockholders in the listed firm were provided by the Statistics Department of the Brussels Stock Exchange.⁶

To compose a sample of subsidiaries involved in a voluntary restructuring by its controlling shareholder, the listed firm, I proceeded as follows. First of all, using the ‘Balanscentrale’ a list was made of all minority and majority holdings for the listed companies between 1991 and 1996.⁷ This period was chosen to verify whether divestiture activity and motives were similar to those reported in studies using US data (Bates 2005; Hanson and Song 2006). At the same time, the percentage held was compiled as it was mentioned in the database. Only those stakes, in which the listed firm held a majority, were included in the sample and will be called subsidiaries hereafter. Subsequently, for each listed company in the period considered a list was made of all subsidiaries no longer mentioned. As a result, a basic sample of subsidiaries was obtained that were either sold or liquidated. Finally, to make the distinction between sold and liquidated subsidiaries, the VAT-numbers of all subsidiaries were analysed by GRAYDON-Belgium. This company provided for each subsidiary its current status, a code indicating why it no longer existed and the starting and ending dates in case of liquidation or a merger. A distinction could thus be made between two categories of divested subsidiaries. The first category, referred to as the sold subsidiaries hereafter, includes those subsidiaries involved in a takeover and the subsidiaries absorbed by another company (code 04). The second category, called the liquidated subsidiaries hereafter, includes the liquidated subsidiaries (code 01) and the subsidiaries split-up (code 03). The final sample, composed of the subsidiaries being sold or liquidated, was thus obtained and will be called the divested subsidiaries hereafter. Besides all financial data for the subsidiaries, the data in the ‘Balanscentrale’ were also used to calculate sector statistics and the number of takeover transactions in the different sectors.

As can be seen in Table 1 Panel A, the final sample contains 151 divested subsidiaries in the 6-years period. Over time, restructuring activity seems to decrease somewhat with only 19 subsidiaries divested in 1996 as compared to 30 in 1991. About two thirds of the sample, 103 subsidiaries, was sold and 78 of them continued their activities after the takeover as a separate legal entity. The same table also shows that only 3 out of 48 subsidiaries are being liquidated because of a split-up. As Panel B of Table 1 shows, the number of subsidiaries remains relatively constant over time ranging from 353 in 1995 to a maximum of 363 in 1994. At the same time, the number of listed firms with at least one subsidiary slightly decreases to 73 in 1996. The table also shows that on

⁶ Following the law of March 22, 1989, called the “Ownership Disclosure Law”, investors have to make a notification to the Banking Commission (similar to the American SEC) if their voting rights reach a level of 5% in a company whose securities are traded on a stock exchange located in the European Union.

⁷ The ‘Balanscentrale’ mentions minority as well as majority stakes. Although I had ownership data going back as far as 1986, balance sheet and income statement data were only available for the firms divested or liquidated from 1991 on.

Table 1 Divestiture activity of the Belgian listed firms in the period 1991–1996

	Total divested (1 = 2 + 5)	Total sold (2) (2 = 3 + 4)	Takeover by another company no code (3)	Absorption by another company code 04 (4)	Total liquidated (5)	Early liquidation (Code 01) (6)	Split-up into several companies (Code 03) (7)	
<i>Panel A: Number of divestitures per year per category</i>								
Period 1991–1996	151	103	78	25	48	45	3	
1991	30	25	22	3	5	5	0	
1992	33	19	12	7	14	13	1	
1993	23	13	10	3	10	9	1	
1994	25	16	12	4	9	8	1	
1995	21	17	11	6	4	4	0	
1996	19	13	11	2	6	6	0	
	1991	1992	1993	1994	1995	1996	Average 1991–1996	Median 1991–1996
<i>Panel B: Frequency of divestiture activity for the Belgian listed firms in the period 1991–1996</i>								
Number of subsidiaries (beginning of the year)	360	360	361	363	353	355	359	360
Number of listed firms (with at least 1 subsidiary)	79	80	77	77	73	73	77	77
Number of divested subsidiaries	31	34	26	28	21	19	27	26
Percentage of subsidiaries divested (%)	8.61	9.44	7.20	7.71	5.95	5.35	7.38	7.46
Number of restructuring listed firms	17	21	15	21	15	15	17	17
Percentage of restructuring. Listed firms (%)	21.52	26.25	19.48	27.27	20.55	20.55	22.60	21.03

average 7.38% of all subsidiaries are divested annually and more than 1 out of 5 listed firms engage in a sale or a liquidation of a subsidiary.

3.2 Descriptive statistics

Based on the hypotheses outlined in the previous section, significant differences can be expected between the retained subsidiaries on one hand and the divested subsidiaries on the other hand. To have a first idea about the possible differences between the different kinds of firms, some characteristic variables are shown in Table 2. For each variable the mean, the median, the standard deviation, the minimum and the maximum and the number of observations are included. Each time the calculations are based on

Table 2 Summary statistics

Variable	Mean	Median	Std. Dev.	Min	Max	No. Obs.	z-value
<i>Panel A: Retained subsidiaries (period '90–'95)</i>							
Total Assets (kEuro)	39,764.50	6,982.71	144,162.93	3.22	1,820,144.3	1571	2.75
GrowthTA (%)	165.80	1.18	4,781.79	−92.30	17,9431.91	1424	2.31
TotD/TA (%)	80.33	61.53	347.66	0.00	9,876.15	1571	0.75
Sales/TA (%)	145.49	107.61	157.58	0.01	2,773.45	1384	0.62
GrowthSales (%)	34.90	3.58	247.58	−99.83	5,108.29	1231	3.99
Gross value added per employee (kEuro)	80.22	53.95	236.70	−790.32	4,586.40	1256	2.88
OpProf/TA (%)	0.99	2.19	34.63	−445.79	928.76	1570	4.45
NetProf/TA (%)	−2.12	1.40	46.20	−802.31	927.45	1571	3.70
Net return on equity after taxes (%)	1.30	5.04	197.92	−1,809.41	6,206.78	1481	3.66
AccProf/TA (%)	−29.04	2.10	406.81	−10,835.38	98.35	1544	1.58
OpCF/TA (%)	6.84	7.06	35.27	−692.25	933.53	1571	3.91
Gross return on equity after taxes (%)	59.98	22.10	718.61	−2,018.88	21,627.12	1494	2.94
InvFA/FA (%)	36.43	17.39	93.81	0.00	2,520.10	1468	2.37
<i>Panel B: Divested subsidiaries (year before restructuring)</i>							
Total Assets (kEuro)	14,566.56	3,691.09	37,472.20	3.57	367,547.27	151	2.59
GrowthTA (%)	4.89	−0.18	70.91	−94.20	522.20	150	1.10
TotD/TA (%)	162.29	63.06	855.86	0.00	9,370.83	151	1.37
Sales/TA (%)	172.76	112.14	193.76	1.21	1,071.96	127	0.24
GrowthSales (%)	16.18	−0.40	152.91	−94.60	1,335.98	125	2.01
Gross value added per employee (kEuro)	57.40	43.24	130.08	−539.49	1,147.92	118	2.30
OpProf/TA (%)	−23.42	−0.09	164.32	−1,715.97	74.40	151	1.12
NetProf/TA (%)	−40.71	0.05	241.48	−2,115.87	332.01	151	0.22
Net return on equity after taxes (%)	−68.90	0.79	496.76	−5,468.67	147.11	132	0.40
AccProf/TA (%)	−219.42	0.74	1,527.88	−17,256.94	72.50	146	0.71
OpCF/TA (%)	−3.52	1.76	63.76	−747.97	47.94	151	2.58

the individual firm-year data for the group under consideration. Panel A presents data for the retained subsidiaries whereas Panel B contains the data for the divested subsidiaries in the year before restructuring. In panel A and B the last column represents the z-value of the non-parametric Mann–Whitney U test of the difference between the median value for the retained subsidiaries and divested subsidiaries in the year before restructuring in the former case and the difference between the liquidated and the sold subsidiaries in the year before restructuring in the latter case. In the discussion of the results, emphasis will be upon the median because of the important differences in the data which make the use of the mean less desirable as can be seen in the table.

Table 2 continued

Variable	Mean	Median	Std. Dev.	Min	Max	No. Obs.	z-value
Gross Return on equity after taxes (%)	-5.56	15.61	361.81	-3,858.37	1,189.30	132	1.82
InvFA/FA (%)	24.99	10.62	40.86	0.00	369.92	143	1.74

Total Assets is the level of total assets at the end of the year, Growth TA is the annual growth rate of total assets between year t and year $t - 1$, TotD/TL is the level of total debt scaled by total liabilities, Sales/TA is the level of sales scaled by total assets, GrowthSales is the annual growth rate of sales between year t and year $t - 1$, Gross Value Added per Employee expresses the gross value added scaled by the number of employees, OpProf/TA is the operational profit scaled by total assets, NetProf/TA is the net profit scaled by total assets, Net Return on Equity after Taxes is the net profit as a percentage of equity, AccProf/TA are the accumulated profits and reserves as a percentage of total assets, OpCF/TA is the operational cash flow scaled by total assets, Gross Return on Equity after Taxes is the operational cash flow as a percentage of equity, InvFA/FA is the investment in fixed assets scaled by fixed assets. The columns represent the mean, the median, the standard deviation, the minimum, the maximum and the number of observations. Panel A represents data for the retained subsidiaries and Panel B for the divested subsidiaries in the year before the restructuring. In Panel A the last column represents the z-value of the non-parametric Mann–Whitney U test of the difference between the median value of the retained subsidiaries and the value in the year before restructuring of the divested subsidiaries. In Panel C the last column represents the z-value of the non-parametric Mann–Whitney U test of the difference between the liquidated and the sold firms in the year before restructuring

With respect to size, measured as total assets, Panel A shows that the retained subsidiaries are significantly larger with a median of 6982.71 kEuro as compared to the divested subsidiaries that have median total assets of 3691.09 kEuro. The growth in total assets between year t and year $t - 1$ is also significantly higher for the retained subsidiaries as compared to the divested subsidiaries. Capital structure on the other hand does not differ significantly between the two groups with the retained subsidiaries having a median percentage of 61.53% of debt to total assets and 63.06% for the divested subsidiaries. The same conclusion can be drawn for the percentage of sales to total assets since no significant differences can be detected. The growth rate of sales shows important differences though between the retained subsidiaries with a median annual growth rate of 3.68% and a negative median growth rate of -0.40% for the divested subsidiaries. The productivity, measured as the gross value added per employee, is again significantly higher for the retained subsidiaries with a median of 53.95 kEuro as compared to the median of 43.24 kEuro for the divested subsidiaries. As far as profitability is concerned, all variables indicate that the retained subsidiaries are significantly more profitable than the divested subsidiaries. Both operational profit and net profit are significantly larger for the retained subsidiaries as compared to the divested subsidiaries. Whereas net profit for the median retained subsidiary is 1.40% of total assets, it is only 0.05% of total assets for the divested subsidiaries in the year before restructuring. This is also reflected in the percentage of accumulated profits/losses and reserves as a percentage of total liabilities. As before the number is more positive for the retained subsidiaries than for the others. The conclusions for the profitability measures also hold when cash flow measures are used including the operational cash flow as a percentage of total assets and the cash flow return on equity.

The operational cash flow for the median retained subsidiary is 7.06% of total assets which is significantly higher than the 1.76% for the divested subsidiaries. The final line in Panel A reveals that the capital expenditures in the retained subsidiaries also significantly outnumber those in the divested subsidiaries.

Whereas Panel A shows significant differences between the retained subsidiaries and the divested subsidiaries, the last column of Panel B indicates that the differences between the liquidated and the sold subsidiaries are more moderate. The significant differences between the liquidated and the sold subsidiaries stem from the smaller size of the liquidated subsidiaries, their lower growth rate of sales, their lower productivity and their lower cash flow performance.⁸

4 Empirical results

Although the summary statistics already demonstrated significant differences between the retained subsidiaries on one hand and the divested subsidiaries on the other hand, a more refined analysis is needed to validate the predictions previously made. Therefore, a logit analysis will be conducted where the dependent variable has a value of 1 when the subsidiary is divested the year afterwards and 0 when it is retained. In the first analyses the joint effect of the variables will be investigated to determine the relative importance of each hypothesis in the voluntary restructuring decision. Afterwards the analysis is extended to examine whether increased ownership concentration induces more efficient monitoring or whether agency motives become more prevalent. A final logit analysis, where a value of 1 is assigned in case of liquidation, will be done to estimate the impact of the hypothesized variables on the restructuring method chosen. A sensitivity analysis verifies the robustness of the results in each case. To avoid the potential distorting effect of outliers, the dependent variables were censored at the 1% and the 99% percentile.

4.1 Determinants of the divestment probability

From the theoretical section it has become clear that several motives can be brought forward that determine the divesting likelihood of a particular subsidiary. The results of the logit analysis, as presented in Table 3, mostly confirm the hypotheses brought forward. The financial constraints motive, which argues that subsidiaries aggravating the financial situation of the parent firm will be divested, is confirmed. The first column shows that, using the net profit scaled by total assets as a proxy (SUBNP), low profits increase the restructuring probability in a significant way. When profitability decreases from the median level to the level of the first quartile, from 1.16 to -1.37%, the divesting likelihood increases from 6.79 to 7.03%. This is confirmed when the operating cash flow is used as an alternative proxy in column 2 (SUBCF). When the operating cash flow decreases from 6.24% of total assets to 0.04% of total assets, which is the decrease from the median to the 25% level, divesting likelihood

⁸ Detailed numbers for the liquidated and the sold firms are not presented here for the sake of brevity but are available from the author upon request.

Table 3 Binomial logit model of divestiture likelihood: coefficient estimates (*p*-values)

	1=DIVEST 0=RETAIN	1=DIVEST 0=RETAIN	1=DIVEST 0=RETAIN	1=DIVEST. 0=RETAIN	1=DIVEST. 0=RETAIN
CONSTANT	-1.1824 (0.0010)	-1.2032 (0.0011)	-1.4228 (0.0000)	-1.6952 (0.0000)	-2.4266 (0.0000)
SUBNP	-1.4537 (0.0000)				
SUBCF		-1.9916 (0.0005)	-1.9156 (0.0013)	-1.9876 (0.0009)	
SUBPROD					-0.00003 (0.3174)
DNACE	-0.4446 (0.0179)	-0.3955 (0.0338)			-0.4678 (0.0279)
GRWTA			-0.1326 (0.4011)		
GRPTRADE				0.2307 (0.4182)	
INDNP	-0.1520 (0.0149)	-0.1251 (0.0543)	-0.1354 (0.0453)	-0.1210 (0.0746)	
INDPROD					0.0104 (0.0000)
DRECENT	-1.0271 (0.0000)	-1.0144 (0.0000)	-0.4963 (0.0561)	-0.8772 (0.0007)	-1.3510 (0.0000)
RGRPSIZE	-0.4858 (0.1134)	-0.4637 (0.1325)	-0.4438 (0.1538)	-0.3348 (0.3004)	-0.7990 (0.0305)
No. Obs.	1972	1972	1764	1922	1571
LogL	-500.0725	-500.0725	-481.6205	-473.0395	-390.7410
R^2	0.0562	0.0503	0.0322	0.0401	0.0906

Logit regression where the dependent variable takes the value of 1 when the subsidiary is divested the next year and 0 otherwise. CONSTANT is the intercept of the logit regression. SUBNP is the subsidiary's net profit scaled by total assets, SUBCF is the subsidiary's operating cash flow scaled by total assets, SUBPROD is the subsidiary's value added per employee, DNACE is a dummy that has a value of 1 if there is an other subsidiary in the group with the same 2-digit NACE code, GRWTA is the subsidiary's growth in total assets minus the growth in total assets of the median firm in the group, GRPTRADE is the percentage of short term debt with affiliated firms as a percentage of short term debt, INDNP is the median industry ratio of net profit to total assets, INDPROD is the industry's median value added per employee, DRECENT is a dummy that takes the value of 1 when the subsidiary has been under control of that listed firm for 3 years or less. RGRPSIZE is the relative size of the subsidiary within the group using its relative ranking based on total assets. Probabilities (*p*-values) of the coefficients are mentioned in brackets. No. Obs. is the number of observations used in the logit regression. LogL is the log-likelihood. R^2 is the rescaled *R*-squared

increases from 7.15 to 8.01%. The presence of a cash drain thus seems prominent as a motivation for restructuring. This finding does correspond with the argument that the controlling firm suffers from financial constraints and therefore decides to dispose of the subsidiaries that drain resources.

The test of the focus hypothesis yields mixed evidence. In the first two columns it can be seen that a subsidiary is most likely to be retained if another subsidiary in the group has the same 2-digit sector code (DNACE). With all variables at their median value, the divesting likelihood for a subsidiary increases 3.11% if no other group member is active in the same sector.⁹ Following the reasoning of [Jongbloed \(1994\)](#) and [Rajan et al. \(2000\)](#), however, relatedness can also be defined in terms of growth opportunities. They postulate that subsidiaries that have few synergies with the other subsidiaries in terms of growth opportunities are more likely to be divested or liquidated. As a proxy for these growth opportunities the group-adjusted growth

⁹ Defining relatedness using the NACE sector code at the 3-digit or 4-digit level yields qualitatively the same negative effect although not in a significant way.

rate in assets (GRWTA) is calculated as the difference between the growth rate of the subsidiary's assets and the median growth rate of the other subsidiaries in the group in the 3 previous years. Column 3 shows that subsidiaries with the lowest asset growth in the group are more likely to be divested, be it not in a significant way. So the hypothesis proposed by [Jongbloed \(1994\)](#) is not confirmed here. The third variable that is used to capture relatedness within the group is the percentage of short term debt with affiliated firms as a percentage of short term debt (GRPTRADE). If subsidiaries in a group have related activities, trading activities between those firms can be expected. However, as column 4 shows, no significant relationship could be detected. Although the focus motive and the need to achieve synergies seems important in explaining the controlling firm's divesting decision, the effect seems to be most pronounced with respect to the sector relatedness rather than in terms of equal growth opportunities or intra-group trade.

The last hypothesis, the managerial capabilities or efficiency hypothesis, states that a subsidiary's performance might also be below its optimal level because management does not have the capabilities or experience to run a firm in this kind of sector. As a result, the subsidiary will perform worse than the median firm in the industry and value creation could be achieved by transferring control. To examine whether management actually tries to optimise the fit between its capabilities and the subsidiaries under control, industry profitability will be included as an explanatory variable, following the methodology of [Schlingemann et al. \(2002\)](#).¹⁰ Industry profitability (INDNP) is defined as the median ratio of net profit to total assets of the industry at the 2-digit level of the NACE sector code. As columns 1 to 4 show, high industry profitability decreases the likelihood of divestment for a subsidiary in a significant way. Performing worse than the industry thus makes a sale or liquidation less likely. This is the opposite of what was expected according to the managerial capabilities motive but consistent with [Schlingemann et al. \(2002\)](#) who found no confirmative evidence for this hypothesis.

Finally, I verify the results of [Maksimovic and Phillips \(2002\)](#), who claim that firms are much less inclined to sell their more productive divisions that are usually also their main divisions, for our sample. Using the subsidiary's productivity (SUBPROD), defined as the value added per employee, as a way to predict divesting likelihood in the last column, yields a coefficient with the expected sign but not in a significant way. Industry productivity (INDPROD) on the other hand, defined as the median ratio of the value added per employee of the industry at the 2-digit level of the NACE sector code, has a significant impact on the restructuring decision. When a subsidiary is less productive than the median firm in the industry, ownership is likely to be transferred to someone better capable of managing these assets. This finding is also consistent with the model of [Yang \(2008\)](#) who predicts that more productive firms will buy their less productive counterparts.

¹⁰ An alternative approach, suggested by the reviewer, uses the industry-adjusted net profit or industry-adjusted productivity of the subsidiary in the logit regressions. The results of this analysis confirm the ones reported here that industry-adjusted performance has no significant impact on divestiture likelihood. Industry-adjusted productivity on the other hand is significantly negatively related to the probability of being divested.

The regressions also include 2 control variables, a dummy variable for a subsidiary 3 years or less under control (DRECENT) and a variable that measures the relative size of the subsidiary within the group (RGRPSIZE). The latter variable is defined as the relative ranking of a subsidiary within the group based on total assets. It is calculated as the ranking of the subsidiary divided by the number of subsidiaries in the group, with a relative ranking of 1 for the largest subsidiary. The coefficient on the dummy variable has a significantly negative relationship with divesting likelihood in all regressions. As was predicted by [Boot \(1992\)](#), management is less inclined to sell or liquidate a subsidiary that has been acquired only recently since this would indicate inefficient acquisition behaviour. With respect to the second control variable, the results of [Schlingemann et al. \(2002\)](#) and [Maksimovic and Phillips \(2002\)](#) are confirmed. Smaller subsidiaries are more likely to be involved in a divestiture whereas the larger ones are rather kept under control although the coefficients are not significant.

Whereas the previous section has shown clear evidence in favor of the financial constraints motive and the focus hypothesis, it remains important to verify the robustness of the results using other proxy variables. The first three columns in [Table 4](#) examine whether a change in profitability, as opposed to the level, has any predictive power in explaining divesting likelihood. It could be argued that management will be more likely to restructure when it finds that the performance of the subsidiary is declining. In that case the result for the group might also suffer unless the worse result of the subsidiary is compensated by other subsidiaries in the group. If that is not possible, a divestiture could avoid further appeal on the group's cash position in the future. As a measure the subsidiary's change of the net profit to total assets ratio is considered (ΔSUBNP) in column 1. Although a decrease in profitability makes a sale or liquidation more likely, the coefficient is not significant. Other proxies include the change in net profit as compared to the other firms in the group (ΔGRPNP) in column 2 and the change in net profit as compared to the sector (ΔSECTNP) in column 3. The results confirm that both the subsidiary's change in profitability as compared to the rest of the group and the sector exhibit the expected sign but never in a significant way. Decreasing profitability will signal management that action might be necessary in the future but it is not the decisive factor.

The last two columns in the table examine whether the capital expenditures of the subsidiary (SUBCAPEX), defined as the investment in fixed assets scaled by total fixed assets, can be used as an indicator for future restructuring likelihood. When capital intensity is high, this could motivate a firm to divest those assets, especially when the firm is cash constrained. On the other hand, large investments could reflect the confidence of management in the subsidiary's investment opportunities and future growth prospects. Column 4 shows that a subsidiary's level of investment is indeed significantly related to the probability of being sold or liquidated. As a consequence, the probability of being divested decreases from 7.59 to 6.15% if capital expenditures increase from the median level to the 75% quartile. Subsidiaries that are able to invest a lot seem to have the confidence of the controlling firm, making a divestiture less likely.

Table 4 Binomial logit model of divestiture likelihood: alternative specifications

	1=DIVEST 0=RETAIN	1=DIVEST 0=RETAIN	1=DIVEST 0=RETAIN	1=DIVEST. 0=RETAIN	1=DIVEST. 0=RETAIN
CONSTANT	−1.0567(0.0044)	−1.0707(0.0047)	−1.0462(0.0048)	−2.2064(0.0000)	−2.3954(0.0000)
ΔSUBNP	−1.0200(0.0513)				
ΔGRPNP		−0.5241(0.3251)			
ΔSECTNP			−0.0097(0.0777)		
SUBCAPEX				−0.6655(0.0242)	
GRPCAPEX					−0.0038(0.0899)
DNACE	−0.3928(0.0350)	−0.3018(0.1251)	−0.3902(0.0362)	−0.4385(0.0211)	−0.3437(0.1608)
INDNP	−0.1668(0.0121)	−0.1567(0.0216)	−0.1679(0.0116)		
INDCAPEX				0.0317 (0.0014)	0.0354 (0.0029)
DRECENT	−0.4861(0.0590)	−0.4489(0.0895)	−0.4852(0.0591)	−0.8779(0.0009)	−1.0736(0.0013)
RGRPSIZE	−0.5907(0.0524)	−0.8036(0.0128)	−0.5876(0.0538)	−0.6844(0.0291)	−0.8039(0.0480)
No. Obs.	1764	1695	1756	1860	1132
LogL	−481.6205	−453.7165	−480.9725	−473.8375	−306.7950
R^2	0.0281	0.0253	0.0275	0.0529	0.0631

Logit regression where the dependent variable takes the value of 1 when the subsidiary is divested the next year and 0 otherwise. CONSTANT is the intercept of the logit regression, ΔSUBNP is the subsidiary's change in net profit scaled by total assets, ΔGRPNP is the change in net profit scaled by total assets minus the net profit scaled by total assets of the median firm in the group, ΔSECTNP is the change in net profit scaled by total assets minus the net profit scaled by total assets of the sector, SUBCAPEX is the subsidiary's investment in fixed assets scaled by the level of fixed assets, GRPCAPEX is the difference between investments in fixed assets of the subsidiary scaled by fixed assets and the investments in fixed assets of the median firm in the group, INDCAPEX is the median investment in material fixed assets of the sector scaled by the level of material fixed assets, DNACE is a dummy that has a value of 1 if there is an other subsidiary in the group with the same 2-digit NACE code, INDNP is the median industry ratio of net profit to total assets, DRECENT is a dummy that takes the value of 1 when the subsidiary has been under control of that listed firm for 3 years or less. RGRPSIZE is the relative size of the subsidiary within the group using its relative ranking based on total assets. Probabilities (p -values) of the coefficients are mentioned in brackets. No. Obs. is the number of observations used in the logit regression. LogL is the log-likelihood. R^2 is the rescaled R -squared

Following [Rajan et al. \(2000\)](#), who examine the role of the diversity of the investment opportunity set within a group, column 5 verifies whether lack of relatedness in investment opportunities has an impact on restructuring likelihood. As a proxy, the difference between the investment in material fixed assets scaled by the level of material fixed assets of the subsidiary and the investments of the median firm in the group (GRPCAPEX) is used. Column 5 confirms that when capital expenditures are lower than the median investment, divestiture likelihood increases significantly.

Finally, the regressions in columns 4 and 5 examine whether industry capital expenditures (INDCAPEX), defined as the median investment in material fixed assets scaled by the level of material fixed assets for the industry at the 2-digit level of the NACE sector code, has any impact on divesting likelihood. In both regressions, high industry investment makes restructuring more likely. When investments in a subsidiary are below the industry level, this could be interpreted as a lack of funds or confidence in the future of the subsidiary. Assuming equal investment opportunities within the industry, underinvestment seems to precede a divestiture, consistent with the findings of [Schlingemann et al. \(2002\)](#).

4.2 The impact of ownership concentration on the divestiture motives

Although the evidence in favour of the focus motive and the financial constraints motive suggests efficient monitoring by management, agency problems could become worse as ownership concentration increases. In line with the findings of [Thomsen et al. \(2006\)](#), who found a negative relationship between ownership concentration and performance, it could be argued that the focus motive and the financial constraints motive will become less prevalent as ownership concentration increases and agency motives dominate the divestiture decision. On the other hand, higher levels of ownership could induce better monitoring if large shareholders become more sensitive to bad subsidiary performance or value destroying diversification. In the absence of a diversion between cash flow and voting rights, large shareholders would thus sooner decide to divest value reducing subsidiaries.¹¹

To examine whether higher levels of ownership concentration lead to more efficient monitoring or whether agency motives hamper the efficiency of the divestiture process, the group of listed firms is split up into 4 groups. The first group, where blockholders own less than 30% of the shares, contains 7 of the 87 listed firms (8.05%). In 15 companies (17.24%) blockholdings vary between 30 and 50% whereas blockholders hold between 50 and 75% of the shares in 37 firms (42.53%). In the remaining 28 firms (32.18%), the controlling shareholders own more than 75% of the shares. For each of these groups, a dummy variable is created and added as an explanatory variable to the logit regressions. The results in Table 5 show that none of the ownership dummies is significant at conventional levels although divestiture likelihood seems to increase until ownership concentration reaches the 75% level, and decrease somewhat beyond that point. This can also be witnessed when the probability of a divestiture is looked at. When all variables have their median values, divestiture likelihood is 4.26% when blockholders own less than 30% of the shares. This likelihood increases to 7.44% when blockholders control between 30 and 50% of the shares and to 7.92% when they own between 50 and 75% of the shares. Beyond that point, the probability of a divestiture again decreases to 5.90%. In each of the regressions, the coefficients are qualitatively similar to those reported before, confirming the importance of focus and financial constraints in the divestiture decision.¹²

To verify whether shareholders become more sensitive to subsidiary performance or relatedness of the subsidiary with the other group members as their ownership stakes increase, interaction coefficients (INTERACT) are added to the logit regressions. Panel A shows that none of the interaction coefficients are significant if less than 30% of the shares are held by controlling shareholders. This situation changes though as ownership becomes more concentrated. Panel D shows that the interaction coefficient of the ownership variable and the subsidiary's cash flow is only significantly negative when more than 75% of the shares are closely held. As a result divestiture

¹¹ In Belgian listed firms, the diversion between cash flow and voting rights is limited since shares with multiple voting rights are not allowed. [La Porta et al. \(2002\)](#) for example report a wedge between cash flow and voting rights of 0.10.

¹² For the sake of brevity the coefficients for the intercept and the control variables are not reported here. The results are qualitatively the same as those reported before.

Table 5 Ownership Structure and Restructuring Likelihood

	DUM<30	SUBNP	SUBCF	DNACE	GRWTA	INDNP	INTERACT SUBCF	INTERACT DNACE	INTERACT GRWTA	INTERACT INDNP	No. Obs.	LogL	R ²
<i>Panel A: Interaction between ownership structure and restructuring motive when blockholders hold less than 30%; coefficient estimates (p-values)</i>													
1=DIVEST	-0.5886		-2.1350	-0.386610		-0.1181	1.8211				1972	500.0725	0.0543
0=RETAIN	(0.1193)		(0.0003)	(0.0387)		(0.0692)	(0.4071)						
1=DIVEST	-0.0463		-1.9866	-0.3314		-0.1173		-0.7359			1972	500.0725	0.0546
0=RETAIN	(0.9335)		(0.0005)	(0.0875)		(0.0715)		(0.3120)					
1=DIVEST	-0.5163		-1.9092		-0.0993	-0.1275			-0.2603		1764	481.6205	0.0360
0=RETAIN	(0.1521)		(0.0014)		(0.5371)	(0.0598)			(0.7080)				
1=DIVEST	1.1081	-1.4580		-0.4313		-0.1281				-0.3683	1972	500.0725	0.0612
0=RETAIN	(0.4186)	(0.0000)		(0.0219)		(0.0464)				(0.2322)			
DUM 30TO50	SUBNP	SUBCF	DNACE	GRWTA	INDNP	INTERACT SUBCF	INTERACT DNACE	INTERACT GRWTA	INTERACT INDNP	No. Obs.	LogL	R ²	
<i>Panel B: Interaction between ownership structure and restructuring motive when blockholders hold between 30 and 50%; coefficient estimates (p-values)</i>													
1=DIVEST	0.0911		-2.3013	-0.3879		-0.1346	1.5694				1972	500.0725	0.0523
0=RETAIN	(0.6974)		(0.0003)	(0.0379)		(0.0421)	(0.2711)						
1=DIVEST	0.2519		-1.9820	-0.3453		-0.1295		-0.2007			1972	500.0725	0.0510
0=RETAIN	(0.4658)		(0.0005)	(0.1029)		(0.0510)		(0.6603)					
1=DIVEST	0.1647		-1.8168		-0.0270	-0.1474			-1.2730		1764	481.6205	0.0387
0=RETAIN	(0.4912)		(0.0024)	-	(0.8540)	(0.0322)			(0.0736)				
1=DIVEST	0.6543	-1.4580		-0.4277		-0.1390				-0.1129	1972	500.0725	0.0571
0=RETAIN	(0.4335)	(0.0000)		(0.0236)		(0.0482)				(0.5108)			

Table 5 continued

	DUM	50T075	SUBNP	SUBCF	DNACE	GRWTA	INDNP	INTERACT SUBCF	INTERACT DNACE	INTERACT GRWTA	INTERACT INDNP	No. Obs.	LogL	R ²
<i>Panel C: Interaction between ownership structure and restructuring motive when blockholders hold between 50 and 75%: coefficient estimates (p-values)</i>														
1=DIVEST	0.2416			-2.5202	-0.4046		-0.1177	1.1120				1972	500.0725	0.0543
0=RETAIN	(0.1899)			(0.0008)	(0.0306)		(0.0732)	(0.3230)						
1=DIVEST	-0.2810			-1.9764	-0.7397		-0.1273		0.8356			1972	500.0725	0.0589
0=RETAIN	(0.3881)			(0.0005)	(0.0021)		(0.0568)		(0.0347)					
1=DIVEST	0.2154			-1.6089		-1.5348	-0.1405			1.7682		1764	481.6205	0.0559
0=RETAIN	(0.2512)			(0.0071)		(0.0012)	(0.0386)			(0.0003)				
1=DIVEST	0.6544		-1.4682		-0.4547		-0.1129				-0.0854	1972	500.0725	0.0598
0=RETAIN	(0.2575)		(0.0000)		(0.0162)		(0.1662)				(0.5047)			

Table 5 continued

	DUM>75	SUBNP	SUBCF	DNACE	GRWTA	INDNP	INTERACT SUBCF	INTERACT DNACE	INTERACT GRWTA	INTERACT INDNP	No. Obs.	LogL	R ²
<i>Panel D: Interaction between ownership structure and restructuring motive when blockholders hold more than 75%:</i>													
<i>coefficient estimates (p-values)</i>													
1=DIVEST	-0.1617		-1.1053	-0.3984		-0.1285	-3.5698				1972	500.0725	0.0616
0=RETAIN	(0.4290)		(0.1015)	(0.0333)		(0.0509)	(0.0051)						
1=DIVEST	0.0834		-1.9622	-0.2438		-0.1471		-0.5136			1972	500.0725	0.0539
0=RETAIN	(0.7860)		(0.0006)	(0.2852)		(0.0275)		(0.2052)					
1=DIVEST	-0.2788		-1.7052		0.0073	-0.1530			-2.1911		1764	481.6205	0.0471
0=RETAIN	(0.1896)		(0.0039)		(0.9587)	(0.0267)			(0.0033)				
1=DIVEST	-1.2286	-1.4601		-0.4158		-0.2443				0.2398	1972	500.0725	0.0616
0=RETAIN	(0.0468)	(0.0000)		(0.0281)		(0.0018)				(0.0780)			

Logit regression where the dependent variable takes the value of 1 when the subsidiary is divested the next year and 0 otherwise. DUM < 30 is a dummy variable that has a value of 1 if blockholders hold less than 30% of the parent firm, DUM30TO50 is a dummy variable that has a value of 1 if blockholders hold between 30 and 50% of the parent firm, DUM50TO75 is a dummy variable that has a value of 1 if blockholders hold between 50 and 75% of the parent firm, DUM > 75 is a dummy variable that has a value of 1 if blockholders hold more than 75% of the parent firm, SUBNP is the subsidiary's net profit scaled by total assets, SUBCF is the subsidiary's operational cash flow scaled by total assets, DNACE is a dummy that has a value of 1 if there is an other subsidiary in the group with the same 2-digit NACE code, INDNP is the median industry ratio of net profit to total assets, GRWTA is the subsidiary's growth in total assets minus the growth in total assets of the median firm in the group, GRPTRADE is the percentage of short term debt with affiliated firms as a percentage of short term debt, INTERACT refers to the interaction variable between OWNDUM and a variable hypothesized to impact the divestiture decision. Probabilities (p-values) of the coefficients are mentioned in brackets. No. Obs. is the number of observations used in the logit regression. LogL is the log-likelihood

likelihood increases from 4.00 to 7.15% if the cash flow to assets ratio decreases from the 75% quartile to the 25% quartile. So only when ownership concentration becomes very high, shareholders will respond sooner to low subsidiary performance and potential financial constraints. At the same time, however, divestiture likelihood remains higher at lower levels of ownership concentration. If cash flows are 13.17% of the subsidiary's total assets, the 75% quartile, the probability of a divestiture is 7.71% when large shareholders own between 50 and 75% of the shares and 7.85% when they hold between 30 and 50%. At the 25% quartile these probabilities become 9.13% for the former group and 8.58% for the latter group.

With respect to the focus hypothesis, a similar view emerges. When a subsidiary is active in a different sector as compared to the other subsidiaries, divestiture becomes more likely when large shareholders hold more than 75% of the shares although not in a significant way. With all other variables at their median values, divestiture likelihood increases in that case from 5.35 to 10.76%. When ownership concentration lies between 50 and 75% on the other hand, the interaction coefficient is significantly positive, as can be made up from Panel C. This implies that unrelated subsidiaries will rather be retained than related subsidiaries since divestiture likelihood increases from 8.65% for the former group to 9.44% for the latter group. This view is confirmed when the interaction with the asset growth rate is considered. Firms where blockholders control between 30 and 50% of the shares or more than 75% of the shares are unlikely to divest subsidiaries that grow faster than the other group members. When a subsidiary's asset growth is 8.51% below that of the median group, the 25% quartile, it has a probability of 10.08% of being divested for the former group and a probability of 7.92% for the latter group. When asset growth is 13.74% higher than the median subsidiary in the group, the 75% quartile, this likelihood decreases to 7.74% for the first group and 5.03% for the other group. Again, when large shareholders own between 50 and 75% of the shares, the interaction coefficient shows the opposite sign. When asset growth increases from the 25% quartile to the 75% quartile, divestiture becomes more likely since the likelihood increases from 8.80 to 9.23%. High growth thus makes a restructuring more likely in that case.

With respect to the managerial capabilities hypothesis, Table 5 again shows that the group with the highest ownership concentration is also the one that is most concerned about industry performance. Consistent with this hypothesis, Panel D reveals that high industry profitability makes a divestiture significantly more likely. For the other ownership levels, the coefficient is insignificantly negative.

These results thus seem to indicate that monitoring happens most efficiently when ownership concentration amounts to more than 75% of the shares. In that case, subsidiaries suffering from low profitability and low growth are more likely to be divested reflecting the involvement of these large shareholders. At lower levels of ownership concentration, however, it cannot be excluded that agency motives dominate the restructuring decision. Especially when large blockholders own between 50 and 75% of the shares, the choice to retain low growth, unrelated subsidiaries even if their performance is low, seems troublesome. More particularly, in view of the finding that this group shows the highest restructuring activity, this may indicate that value maximization is less of a concern to management and other unidentified motives steer their decisions.

4.3 The choice between a sale and liquidation

The previous analysis assumed that the first step in the restructuring process involved the choice between either retaining or divesting a subsidiary. Once the decision has been made to restructure a particular subsidiary, management has to determine whether the subsidiary will be liquidated or sold. To verify the impact of asset liquidity and firm specific elements on the choice between these two options, as well as the role of the parent firm's ownership structure, a logit analysis is conducted in which the dependent variable takes a value of 1 if the subsidiary is liquidated the year afterwards and 0 if it is sold one year later.

To examine whether concentrated ownership induces a preference for one restructuring method in particular, dummies are added in the logit regression dependent on whether blockholders hold a block between 30 and 50% (DUM30TO50), between 50 and 75% (DUM50TO75) or more than 75% (DUM > 75). As was expected, Table 6 reveals that none of these ownership dummies are significant in the regressions. Blockholders holding more than 75% of the parent firm's shares are more likely to liquidate a subsidiary than firm with more dispersed ownership but not in a significant way. So it appears that agency problems do not play a role anymore once the divestment decision is taken. An explanation could be that a sale is always the preferred option and liquidation is only chosen when that possibility is no longer viable.

The first factor hypothesized to influence the choice between liquidation or divestiture is asset liquidity. Following the arguments of [Shleifer and Vishny \(1992\)](#) and [Maksimovic and Phillips \(2002\)](#), the relative size of a subsidiary within its sector (RINDSIZE) and the relative size of the sector, based on the number of firms in that industry, (RSECTSIZE) are used as proxies for asset liquidity. The former variable is defined as the decile a subsidiary belongs to in its sector based on total assets using the 2-digit level of the NACE sector code with the smallest subsidiaries belonging to decile 10 and the largest subsidiaries belonging to decile 1. The latter variable is defined as the decile the sector of the firm belongs to based on the number of firms in the sector at the 2-digit level of the NACE sector code with the smallest sector belonging to decile 10 and the largest sector belonging to decile 1. In column 1 of Table 6, I find that asset liquidity is significantly and positively related to the liquidation likelihood. When size decreases from the median level to the 75% quartile, liquidation likelihood increases from 21.35 to 29.63%, with all other variables at their median value. Subsidiaries that are relatively small in their sector thus are more likely to be liquidated whereas the relatively large subsidiaries are sold. This does not confirm the hypothesis that large subsidiaries are less liquid and will be harder to sell. Additionally, subsidiaries that belong to a sector with few competitors have a higher probability of being liquidated. The median firm in the sample, which belongs to decile 1 with the largest number of firms in the sector, has a liquidation likelihood of 21.35%. This probability increases to 28.34% if the firm's sector is smaller and belongs to the third decile, with all other variables at their median value. This finding is in line with the arguments of [Maksimovic and Phillips \(2002\)](#) that a lot of potential buyers make a divestiture more likely. This is confirmed in columns 2 to 4, using the interaction variable of the two proxies for asset liquidity, that demonstrate that especially small subsidiaries operating in sectors with only few competitors are the primary candidates for liquidation.

Table 6 Binomial logit model of restructuring method: coefficient estimates (*p*-values)

	1=LIQUID. 0=SALE	1=LIQUID. 0=SALE	1=LIQUID. 0=SALE	1=LIQUID. 0=SALE	1=LIQUID. 0=SALE	1=LIQUID. 0=SALE
CONSTANT	−2.347 (0.0124)	−1.683 (0.048)	−1.5228 (0.0797)	−1.6250 (0.058)	−1.5302 (0.0801)	−1.5270 (0.0735)
DUM30TO50	0.4429 (0.6490)	0.4170 (0.6624)	0.8820 (0.3787)	0.8150 (0.4186)	0.8730 (0.3835)	0.8663 (0.3887)
DUM50TO75	0.4630 (0.6123)	0.3420 (0.7025)	0.6650 (0.4696)	0.6010 (0.515)	0.7518 (0.4111)	0.7455 (0.4146)
DUM>75	0.7394 (0.4239)	0.6990 (0.4447)	1.1010 (0.2488)	1.0110 (0.2909)	1.2250 (0.1966)	1.2223 (0.1946)
SUBCF	−0.8483 (0.5384)	−0.8540 (0.5496)	−0.9900 (0.5031)			
DNEGCF				0.6410 (0.1684)	0.6970 (0.1246)	0.6937 (0.1294)
DISCRIM	−0.0726 (0.1312)	−0.0960 (0.0468)	−0.1030 (0.0334)	−0.1010 (0.0246)	−0.0939 (0.0358)	−0.0939 (0.0346)
GRWTA	0.3820 (0.1392)	0.3700 (0.1557)				
DNEGGRW			−1.0010 (0.0225)	−1.0650 (0.0175)	−1.0526 (0.0163)	−1.0518 (0.0161)
RINDSIZE	0.1418 (0.0443)					
RSECTSIZE	0.1772 (0.0797)					
RINDSIZE *RSECTSIZE		0.0480 (0.0149)	0.0460 (0.0213)	0.0440 (0.0278)		
%TRANS					0.0866 (0.9661)	
TA%TRANS						0.1373 (0.9422)
No. Obs.	139	139	139	139	139	139
LogL	−85.163	−85.163	−85.163	−85.163	−85.163	−85.163
<i>R</i> ²	0.1586	0.1556	0.1862	0.1986	0.1514	0.1515

Logit regression where the dependent variable takes the value of 1 when the subsidiary is liquidated the next year and a value of 0 when the subsidiary is divested the next year. CONSTANT is the intercept of the logit regression, DUM30TO50 is a dummy variable that has a value of 1 if blockholders hold between 30 and 50% of the parent firm, DUM50TO75 is a dummy variable that has a value of 1 if blockholders hold between 50 and 75% of the parent firm, DUM > 75 is a dummy variable that has a value of 1 if blockholders hold more than 75% of the parent firm, SUBCF is the subsidiary's operational cash flow scaled by total assets, DNEGCF is a dummy variable that has a value of 1 if the subsidiary's cash flow is negative in the year before liquidation or divestiture, DISCRIM is the discriminant score of the failure prediction model of Ooghe and Van Wymeersch (1994), GRWTA is the growth rate of total assets in the year before the liquidation or divestiture, DNEGGRW is a dummy variable that has a value of 1 if the growth of total assets is negative in the year before liquidation or divestiture, RINDSIZE is the decile to which a subsidiary belongs in its sector based on total assets at the 2-digit NACE code with the smallest subsidiaries belonging to decile 10 and the largest subsidiaries belonging to decile 1, RSECTSIZE is the decile to which the sector of the subsidiary belongs based on the number of firms in the sector at the 2-digit NACE-code with the smallest sector belonging to decile 10 and the largest sector belonging to decile 1, RINDSIZE*RSECTSIZE is an interaction variable of the RINDSIZE and the RSECTSIZE variable, %TRANS is the percentage of transactions in that sector based on the 2-digit NACE code, TA%TRANS is the asset weighted percentage of transactions in that sector. Probabilities (*p*-values) of the coefficients are mentioned in brackets. No. Obs. is the number of observations used in the logit regression. LogL is the log-likelihood. *R*² is the rescaled *R*-squared.

The percentage of takeovers in a certain sector (%TRANS) as an alternative measure for asset liquidity, similar to the measure of [Schlingemann et al. \(2002\)](#), however, does poorly in predicting which subsidiary is going to be liquidated as can be seen in column 5. The same holds for the asset weighted percentage of transactions in a sector (TA%TRANS) which may indicate that these measures are weak proxies for asset liquidity.

The second hypothesis with respect to the choice of restructuring method focuses on the lack of growth opportunities or the presence of financial distress. The two first columns in the table show that a subsidiary's growth opportunities, using the growth in total assets in the year before the divestiture (GRWTA) as a proxy, do not significantly determine management's choice between liquidation or a sale. Using a dummy variable that has a value of 1 if the growth in total assets is negative (DNEGGRW), however, has a significant and negative effect on liquidation probability as can be seen in columns 3 to 6. Although the growth opportunities are lost in case of liquidation, it does not prohibit the controlling firm from liquidating its subsidiary when these growth opportunities are present.

With respect to financial distress on the other hand, several measures indicate that subsidiaries whose competitive position is not sufficient to guarantee future survival are liquidated. Although the operational cash flow scaled by total assets (SUBCF) has a negative effect on liquidation likelihood, the effect is not significant as can be seen in columns 1 to 3. However, using a dummy that has a value of 1 when the operating cash flow is negative (DNEGCF) in columns 4 to 6 shows that it significantly impacts the decision to liquidate a subsidiary. When all variables are set at their median value, the probability of liquidation increases from 12.67 to 23.10% when the operating cash becomes negative. A negative operating cash flow clearly signals the possibility of financial distress, irrespective of its absolute size. Further evidence on this hypothesis is provided in the logit regressions by the explanatory power of the discriminant score (DISCRIM) of the failure prediction model developed by [Ooghe and Van Wymeersch \(1994\)](#). In all regressions a high score reduces the likelihood of liquidation in a significant way. When the discriminant score increases from the level of the 25% quartile to the 75% quartile, liquidation likelihood decreases from 22.94 to 20.69%. Again, subsidiaries that are in a weak financial position and face bankruptcy in the future are liquidated.

To get more insight into the finding that financial distress is an important factor in explaining the choice of restructuring method, a sensitivity analysis is conducted. First of all, the factors contributing to the highly significant discriminant score will be looked at in more detail. The 3 most important variables that are taken into account in the failure prediction model of [Ooghe and Van Wymeersch \(1994\)](#) are the accumulated profits or losses and reserves scaled by total liabilities (ACCPROF), the taxes and the social security payments that have fallen due scaled by short term debt (DUETAX) and the amount of liquidities as a percentage of current assets (LIQ). The results on these variables are presented in columns 1 to 3 of Table 7. The table shows that only the accumulated profits and reserves scaled by total liabilities have a significant effect on the choice between liquidation and divestiture. A firm that has accumulated a significant amount of losses in the previous years is unlikely to be taken over and liquidation seems the only option left. Whereas accumulated profits

and reserves are 11.32% of total liabilities for the 75% quartile of the sample, which results in a liquidation likelihood of 11.98%, the 25% quartile has accumulated losses of 15.53% of total liabilities and a liquidation likelihood of 13.19% if all other variables are kept at their median value. The variable that measures the taxes and the social security payments fallen due in column 2 has no significant effect. This is not surprising since only 8 companies have taxes fallen due, 2 in the liquidation sample and 6 in the divestiture sample. The third variable in column 3 that measures potential liquidity problems also has no significant effect.

Another measure indicative of financial distress was the subsidiaries' capital structure, measured as the ratio of total debt to total assets (DEBT). The results in column 4 show though that the debt level has no significant impact on the restructuring method chosen, contrary to the expectations of [Pastena and Ruland \(1986\)](#).

A final consideration with respect to the choice between a sale and liquidation relates to the way control is exercised over the subsidiaries. In case a listed firm wants to liquidate its subsidiary, one can expect this to be more likely when it controls the subsidiary completely and does not have to be concerned about other shareholders. Using a dummy that has a value of 1 when the listed firm holds 100% in the subsidiary (D100%) confirms this idea, as can be seen in column 5 of Table 7. When all variables are at their median value, the probability of liquidation for a subsidiary is 18.43% when the controlling firm holds 100% of the shares but only 7.68% when that is not the case. The way control is exercised, either directly or indirectly, does not make a difference though. Column 6 shows that a dummy for the subsidiaries that are controlled directly (DDIRECT), which means that the percentage of cash flow rights held directly is larger than the percentage held indirectly, is not significantly related to the choice between liquidation and a sale. Besides the financial characteristics, having total control thus seems an important requirement in the decision to liquidate a subsidiary.

5 Conclusion

This paper examines why companies decide to divest a subsidiary in a corporate environment characterised by concentrated ownership. Additionally, the determinants for the restructuring method chosen are looked into. Using the financial statements of on average 359 non-listed Belgian subsidiaries over the period 1991–1996 I am able to compose a unique dataset which consists of 1972 panel data observations.

My binomial logit analyses confirm the results of [Lang et al. \(1995\)](#) that poor subsidiary performance leads to an increased divestiture likelihood. This holds both when the subsidiary reports low net profits and when operational cash flows are low. Besides the mitigation of financial constraints, the divestiture decision is also driven by the desire to focus. Consistent with the results of [John and Ofek \(1995\)](#), subsidiaries that are not related to the other activities of the group, are likely to be divested. This holds particularly when relatedness is expressed in terms of sector relatedness but to a much lesser extent when it is measured as the divergence in growth opportunities or the extent of intra-group trade. Performing worse than the industry, which could be indicative of low managerial capability, has no significant impact on divestiture likelihood. When subsidiary productivity is below the industry median though, the

Table 7 The impact of financial distress and control variables on liquidation likelihood

	1=LIQUID. 0=SALE	1=LIQUID. 0=SALE	1=LIQUID. 0=SALE	1=LIQUID. 0=SALE	1=LIQUID. 0=SALE	1=LIQUID. 0=SALE
CONSTANT	-1.0272 (0.0008)	-0.9616 (0.0018)	-1.1696 (0.0002)	-1.0087 (0.0048)	-1.5507 (0.0001)	-1.3098 (0.0207)
DNEGGRW	-0.9204 (0.0298)	-0.7601 (0.0615)	-0.7471 (0.0673)	-0.7736 (0.0553)	-0.9312 (0.0319)	-0.9452 (0.0267)
DISCRIM					-0.1154 (0.0143)	-0.0975 (0.0295)
ACCPROF	-0.0041 (0.0212)					
DUETAX		-1.0966 (0.4899)				
LIQ			0.0163 (0.1412)			
DEBT				-0.0345 (0.9232)		
NEGCF	0.7209 (0.1156)	1.0386 (0.0163)	0.9560 (0.0282)	1.0119 (0.0221)	0.6396 (0.1725)	0.7939 (0.1058)
RINDSIZE*	0.0467 (0.0210)	0.0410 (0.0399)	0.0413 (0.0391)	0.0445 (0.0261)	0.0469 (0.0190)	0.0469 (0.0215)
RSECTSIZE						
D100%					0.9992 (0.0191)	
DDIRECT						0.3793 (0.5094)
No. Obs.	139	139	139	144	139	139
LogL	-85.163	-85.163	-85.163	-87.795	-85.163	-85.163
R ²	0.1875	0.1586	0.1540	0.1323	0.2359	0.1896

Logit regression where the dependent variable takes the value of 1 when the subsidiary is liquidated the next year and 0 when the subsidiary is divested the next year. CONSTANT is the intercept of the logit regression, DNEGGRW is a dummy variable that has a value of 1 if the growth of total assets is negative in the year before liquidation or divestiture, DISCRIM is the discriminant score of the failure prediction model of [Ooghe and Van Wymeersch \(1994\)](#), ACCPROF are the accumulated profits or losses and reserves scaled by total liabilities, DUETAX are the taxes and the social security payments that have fallen due scaled by short term debt, LIQ is the amount of liquidities as a percentage of current assets, DEBT is the ratio of total debt to total liabilities, NEGCF is a dummy variable that has a value of 1 if the firm's cash flow is negative in the year before liquidation or divestiture, RINDSIZE is the decile to which a firm belongs in its sector based on total assets at the 2-digit NACE code with the smallest firms belonging to decile 10 and the largest firms belonging to decile 1, RSECTSIZE is the decile to which the sector of the firm belongs based on the number of firms in the sector at the 2-digit NACE-code with the smallest sector belonging to decile 10 and the largest sector belonging to decile 1, RINDSIZE*RSECTSIZE is an interaction variable of the RINDSIZE and the RSECTSIZE variable, D100% is a dummy variable that has a value of 1 if the listed firm holds 100% in the subsidiary, DDIRECT is a dummy that has a value of 1 if the percentage held directly is larger than the percentage held indirectly. Probabilities (p -values) of the coefficients are mentioned in brackets. No. Obs. is the number of observations used in the logit regression. R^2 is the McFadden R -squared

assets will no longer be kept under control, as was shown by [Maksimovic and Phillips \(2002\)](#) with plant level data. The same holds for subsidiaries that have low capital expenditures, which could be an indication of management's lack of confidence in the subsidiary's future opportunities. Monitoring by the controlling shareholders thus induces management to act when it is in the best interest of all shareholders.

A more detailed analysis reveals that the divestiture decision is more likely to be driven by agency motives as the degree of ownership concentration increases, consis-

tent with the findings of [Thomsen et al. \(2006\)](#). The listed firms in which the controlling shareholders hold between 50 and 75% of the shares exhibit the highest divestiture likelihood but at the same time they do not become more sensitive to the subsidiary's profitability or the lack of relatedness with the other members of the group. Only when ownership concentration amounts to more than 75%, controlling shareholders have the incentive to scrutinize the subsidiaries intensively and the monitoring motive becomes dominant in that case. This evidence adds to the findings of [Hanson and Song \(2006\)](#) that stronger internal control mechanisms initiate restructuring activities.

Once the decision to divest has been taken, the choice has to be made between a sale and liquidation. My binomial logit analyses reveal that both industry and firm specific elements have a significant impact on this decision. As was shown by [Schlingemann et al. \(2002\)](#), asset liquidity increases the probability of a sale. Liquidation on the other hand, will be likely for small subsidiaries in a sector with few competitors but the probability of financial distress in a subsidiary also plays an important role. A subsidiary that has accumulated losses in the previous years, which will also result in a low discriminant score in a failure prediction model, is likely to be liquidated. Holding all votes in the subsidiary seems crucial though before liquidation can be initiated. The level of ownership concentration does not seem to play an important role in this decision.

My paper thus adds to the existing divestiture literature in several ways. First of all, I show that the motives to divest a subsidiary in a country characterised by concentrated ownership, which is common in many countries around the world, are similar to those reported in previous research. However, I also stress the importance of considering the degree of ownership concentration since it determines whether agency motives or efficient monitoring drive the divestiture decision. Additionally I use subsidiary data instead of the usual approach which looks at parent firm data. Finally, I highlight the importance of distinguishing between a sale and liquidation as restructuring method, which has received little attention in the past.

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