SEPARATION BETWEEN OWNERSHIP AND CONTROL: WHERE DO WE STAND?*

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Abstract

Complex structure of ownership like cross-ownership, rings, and pyramids are common in Continental Europe, Eastern Europe, and in Asia. This paper aims at dissecting these complex features by a proper measurement of direct and indirect holdings. Building on Brioschi et al. (1989), we use the input-output matrix methodology and we add control considerations in the matrix calculations to derive a straightforward method of quantifying the separation between ownership and control for a firm or a shareholder, named the "separation ratio". After giving an overview of the full ownership structure of the listed Belgian companies, we present and apply our method to a database of more than 800 companies and individuals linked to the Belgian listed firms. Next, we replicate the approach with data from several European countries and the United States. These international comparisons allow evaluating the interactions between the economic environment of a country, and its corporate governance features.

Keywords: Ownership structure, Pyramiding, Cross-ownership, Separation ratio

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1. Introduction

The aim of this paper is to develop a methodology for measuring the magnitude of separation between ownership and control among shareholders of a set of companies. Control is defined with respect to the majority voting rule. For each firm, the control ratio of a shareholder is obtained by dividing the share of control he can exercise directly or indirectly over a given company, by the percentage of shares he actually owns in that company.

Indirect effects are crucial especially in structures like pyramids, cross-shareholdings, rings or own shares. Indeed, integration heavily modifies the distribution of power. Therefore, indirect ownership and control need to be calculated in order to assess the real influence of a shareholder in a company and to identify actual controlling investors. An apparently large shareholder might for instance act as a leverage for its controlling parent company.

Improving on Brioschi et al. (1989), we apply our methodology to real data in order to quantify the importance of separation between ownership and control in Belgian listed companies and in the non-listed companies around them. Next, the analysis is extended to international comparisons in order to evaluate the interactions between economic culture and the separation between ownership and control in ownership structures.

Over the last years, ownership and control issues have been examined through an abundant literature. Studies have tempted to relate ownership structure and performance, but not always with great success. Short (1996) published an interesting survey on the matter, giving some hints to explain the lack of strong results. Other papers have dealt with takeovers and the existence of a market for share stakes in countries where ownership is not concentrated. On this matter, Franks and Mayer (1996) reported evidence of high board turnover and restructuring following hostile takeovers with, however, little evidence of poor performance prior to bid. Similarly, Jensen (1993) showed that hostile takeovers as a form of market discipline could only explain a small

fraction of the takeovers observed in the US in the eighties.

More generally, La Porta et al. (1998, 1999) published wide empirical studies on the links between ownership and the legal environment of the firm in relation with investor protection. They used data from large corporations in 27 industrialised countries. They found that controlling shareholders typically use voting leverage, separating ownership from control by the use of pyramids and further increase their control by participation in management. Cragg and Dyck (1999) examined the links between ownership and internal control for a sample of publicly traded firms in the UK.

Denis and Sarin (1999) showed that, on a sample of 583 US firms, ownership and board changes are strongly related to top executive performance, prior stock price performance and corporate control threat.

In Japan (Hopt et al., 1998, Claessens et al., 2002) and Continental Europe (Barca and Becht, 2001), control structures are far more complex than in the Anglo-Saxon world. There are many more levels of ownership in a company and shareholdings structures includes cross-ownership, rings, and high level of voting concentration. As a consequence, it becomes more difficult to identify controlling investors, the perimeters of companies control, and the voting leverages in majority voting. A proper computation of control power is thus crucial for this type of countries. Indirect ownership has thus predominantly been studied for European and Asian countries. Claessens et al. (2002) replicate the methodology of La Porta et al.(1999) to elaborate the analysis of separation between ownership and control in Asian corporations. Two recent books survey recent results in corporate governance : Hopt et al. (1998) gather 25 papers to examine comparative corporate governance in Europe, Japan and in the United States according to historical, legal and economic aspects. Barca and Becht (2001) collect papers from 9 European countries members of the European Corporate Governance Network(ECGN) detailing the ownership characteristics of ownership and exploring the means of separation between ownership and control in European Corporations.

The input-output matrix technology has dominated the methods currently used to measure indirect ownership. In the context of privatisations, Ellerman (1991) focused on the problem of circular patterns of cross-ownership between companies. His model is applied to the Yugoslavian case and to the Japanese conglomerates displaying cross-ownership. He showed that, due to cross-ownership relations, the external shareholders dispose of a larger part than their direct ownership.

Flath (1992a) proposed a measure for indirect shareholding and provides estimates for six major Japanese keiretsus. For these groups, indirect holdings of each firm are about one fourth as great as direct shareholdings on average. Flath (1992b) analysed how horizontal shareholdings interlocks induce Cournot industries to restrict production. Again, applications can be found in Japan but also as in some US companies. The model used by Ellerman (1991) and Flath (1992a) is a preliminary version of Baldone et al. (1997) that will be described in section 4 of this paper.

Brioschi et al. (1989) developed a model to calculate the value of firms in a group and the integrated ownership shares held by an outside stockholder. These authors showed how the process of raising capital is chosen to avoid losing control. This model is applied to large Italian industrial groups like Fiat and Pirelli. In order to analyse control stakes, the authors use the "share of the common stock available to the controlling family; it equals the sum of the shares owned directly by the controlling family and of the shares owned by all the firms of the group."[59]

Baldone et al. (1997) proposed a method, also based on cross-ownership matrix, for computing integrated shares.

Renneboog (2000) and Becht, Chapelle and Renneboog (2001) analyse ownership of listed Belgian firms and detail portfolios of shareholdings per type of investor. Renneboog (2000) gives some specific examples of pyramidal ownership and shows how this type of structure can lead to the violation of the one share – one vote rule, that is, the separation between ownership and control for ultimate shareholders. His methodology, however, is based on summary data and does not fit automatic computation for large scale analysis, like the one we present here.

Next to these papers, a few other national publications are dedicated to statistical analysis of ownership in Belgium (Van der Elst, 1998, 1999) and names and importance of various large investors on the Brussels Stock Exchange, become Euronext since 2000 (Van Waterschoot, 1996, 1997, 1998). Based on very rich and complete databases, these studies contribute to an enhanced transparency and a better understanding of the ownership features of listed companies.

If numerous papers are now increasingly dedicated to the separation of ownership and control, none of them have yet amended on the existing input-output matrix methodology to use it as a measurement device of the level of separation between ownership and control stakes. Filling this gap, our paper develops a straightforward measure of separation between ownership and control, before applying it to the shareholdings structure of Belgian companies.

The paper is organised as follows: section 2 describes the data; section 3 gives the main features of direct ownership in Belgian listed companies in 1999. Section 4 presents the methodology used to derive a separation measure between ownership and

[59] Brioschi et al. (1989), footnote c, Table 3, p.768.

control. Section 5 displays the summary results of separation ratios for Belgium and gives some comments about the structure of the ownership links between Belgian companies. Section 6 extends the analysis to international comparisons. Section 7 proposes some explanations and gives a few implications of the various levels of separation between ownership and control in the different countries. Section 8 concludes.

2. The Data

In Belgium, like in some other European countries, shareholders are required by law to identify themselves. Each time an investor crosses, upwards or downwards, a multiple of five percent ownership in a listed company, he or she has to notify both the listed firm and the market authorities. This information is then published in the financial press.

For direct ownership data, we used the ownership declarations published in the press. Indirect ownership data gathering was much more time consuming. Our main source is a CD-ROM "BNB" supplied by the Belgian Central Bank. It gathers the annual accounts that each Belgian firm has to provide once a year to the Central Bank. Belgian firms, listed or not, are required to mention the list of their shareholdings in other firms exceeding 10% of the voting capital. These published shareholdings portfolios make possible to identify the firms that hold stakes in the direct shareholders of listed Belgian firms, and so to reconstitute the ownership pyramid.

3. Ownership Structure in Belgium in 1999

3.1. Ownership Concentration

To give a synthetic view of direct ownership concentration, Figure 1 in appendix displays the direct stakes by rank in the Belgian listed companies. For each rank, the minimum, median, mean and maximum are computed in percent of the votes. The median and the mean of the largest direct stake in a listed Belgian firm is around 42%. This confirms that Belgian direct ownership is highly concentrated. In order to get majority control of 50%, the largest shareholder ought to form a coalition with the second or the third largest shareholder. Still, in practice, very small shareholders do not usually exercise their voting rights on the annual meetings such that the largest average shareholder might have de facto absolute control.

A remarkable point (Figure 1) is that the second largest shareholder lags neatly behind the first one, with a median stake and a mean stake around 10%, which is two times less than a blocking minority (25% of the voting shares). The third rank of stakes is even much smaller, around 5%, and the rest is negligible. It follows that direct shareholdings are characterised by a small number of significant shareholders - one to three - with a largest investor approaching the majority level and that is not challenged by the second largest owner, lying below the blocking minority level.

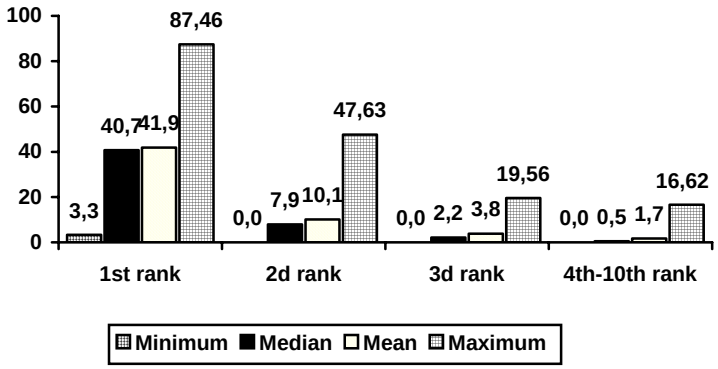

Figure 1. Direct blocks by rank of block for all listed companies - 1999

To compare ownership characteristics both in terms of direct stakes and voting blocks, the same figures are displayed for both variables. A voting block is a group of shareholders that have officially declared voting together on a certain type of issues, or on all, at the Shareholder meeting. This type of agreement is made public in Belgium for shareholders of listed companies.

The median and the mean of the largest voting block in a listed Belgian firm is around 50%, which is above the simple majority level (Figure 2). And, as for direct stakes, the second largest blockholder lags far behind the first one, with a mean stake less than 7%. Further ranks are even negligible.

Direct ownership of listed companies is thus characterised by the control exercised by a single voting block, when other minor blockholders gather only a few percentages of the votes, in most cases.

However, some voting pacts, resulting from simple contractual agreements, might be temporary or fragile, especially in bad times, so that they do not always reflect the real voting structure of a General Assembly. It is the reason why voting blocks are not always taken into account by certain studies, or by the firm itself, and by the other shareholders.

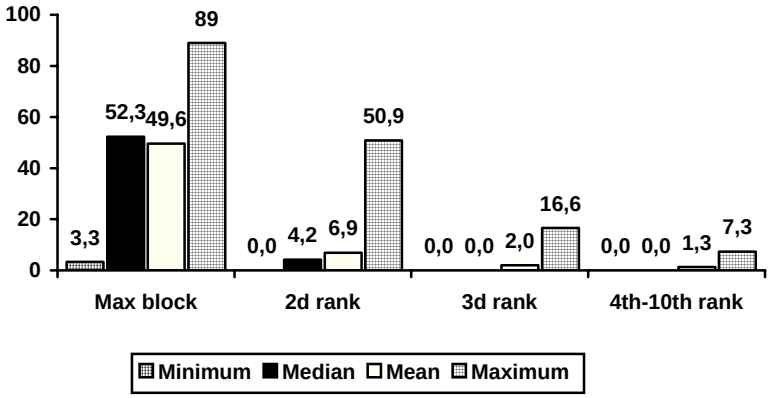

Figure 2. Voting blocks by rank of block for all listed companies - 1999

In order to assess the stability of the voting blocks, table 1 shows the number of stakes in a voting block. In more than 50 percent of the cases (150 elements), the voting blocks is only composed of one single shareholder. If we consider the 150 voting blocks remaining and made of several shareholders, 50 voting blocks are coalitions between two shareholders and 50 others are coalitions between three to five shareholders. The maximum value is 49 shareholders in one block; it is a coalition of individuals and non-listed firms voting in the holding company Almanij.

Table 1. Number of stakes in voting block

No. of Stakes in a Voting Block	Freq.	Percent	Cum.
1	150	55.76	55.76
2	43	15.99	71.75
3	21	7.81	79.55
4	15	5.58	85.13
5	11	4.09	89.22
6	6	2.23	91.45
7	5	1.86	93.31
8	3	1.12	94.42
9	5	1.86	96.28
10	3	1.12	97.4
11	1	0.37	97.77
14	1	0.37	98.14
19	1	0.37	98.51
20	1	0.37	98.88
24	1	0.37	99.26
29	1	0.37	99.63
49	1	0.37	100
Total No. of Voting Blocks	269	100.00	

3.2. Average structure

Data show also that there are on average 5 direct stakes and 2 voting blocks declared per company. Three quarters of the firms count 7 or less notified direct stakes, and half of the listed firms count 3 or less notified direct skates. Extreme cases are one company with 58 direct stakes and 3 voting blocks and one company with 8 voting blocks. To get a global picture, figure 3 displays the average structure of ownership in Belgium.

Table 2.1. Average structure of direct ownership of listed Belgian firms - 1999

Variables	Mean / 1st	2d	3d	4th
Average number of voting blocks per firm	2			
Average number of direct stakes per firm	4			
Average size of the voting blocks	50%	7%		
Average size of the direct stakes[60]	42 %	10 %	4 %	2 %

[60] Direct stake: stake held directly in a firm by a shareholder considered individually

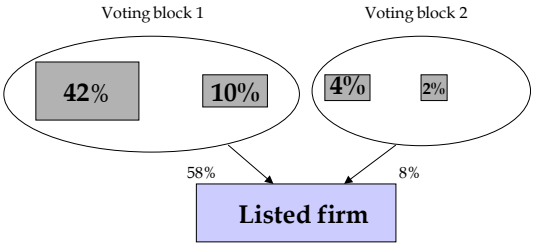

Figure 3. Average structure of direct ownership of listed Belgian firms - 1999

3.3. Results on Shareholders Portfolios

Industrial companies, public and private, are the largest group of investors (table 2). There are both the most numerous and the ones with the largest portfolios, with nearly 350 stakes and 290 investors. Besides, the stakes held by particular types of firms, such as foundations,administratiekantoren (administrative offices) and off-shore firms in fiscal paradises are of growing importance with nearly 11% of investors in this category and averages stakes of one fourth of the votes.

Table 2.2. Summary statistics by direct shareholder type - 1999

Investor	Mean	Maximum	Number of investors	Number of stakes
Belgian Industrial Companies	16.5	87.5	289	348
Belgian Financial Companies	3.4	60.5	50	78
Foundations, off-shore companies	24.1	84.2	56	57
Individuals	6.7	76.9	93	95
State	50.0	50.0	1	1
Institutional investors	3.0	12.6	20	23

Institutional investors and individuals own small but numerous stakes, especially the individuals. Banks are present among financial investors, essentially via their insurance subsidiaries, but direct stakes are extremely reduced. The section of the state is the 50% stake held by the Belgian state in the Central Bank.

Besides portfolios of shareholders, portfolios of the listed companies are analysed as well. However, we excluded the shareholdings in subsidiaries and branches and shareholdings below 2% of the voting shares. In summary, there are three types of listed firms in terms of shareholdings:

Type 1: listed firms having no shareholdings in other firms than their subsidiaries and branches: 40% of the cases.

Type 2: listed firms having only a few direct holdings (4 on average) in Belgian non-listed companies: 20% of the cases.

Type 3: listed firms having shareholdings both in foreign companies and in other listed Belgian companies, directly and indirectly. Type 3 represents 33 % of the listed Belgian firms, and yields essentially for the largest ones.

4. Separation between Ownership and Control: the Methodology

The methodology used to compute direct and indirect ownership of the listed companies is based on the model developed by Baldone, Brioschi and Paleari (1997) improving on Brioschi et al. (1989). The models uses an input-output matrix to determine the integrated (direct + indirect) ownership shares in a set of firms, on the basis of all the direct ownership links existing between those firms.

The integrated ownership of a firm is computed the following way:

Let $A= [a_{ij}]$ be the matrix of direct ownership where a_{ij} is the percentage share of total equity shareholder i holds in firm j directly.

We want to compute the matrix of integrated ownership "Y".

Let $Y = [y_{ij}]$ be the matrix of integrated ownership, where y_{ij} is the sum of percentage shares of total equity shareholder i holds in firm j directly, indirectly, and through cross-shareholdings.

Let D(Y) be a diagonal matrix in which the k-th element is y_{kk}. D(Y) can be interpreted as the matrix of the own shares of each firm of the set.

Thus:

$$Y = A - D(Y)A + YA \quad (1)$$

[Integrated stake of i in k = Direct stake of i in k – Reciprocal stake of k in i +Indirect stake of i in k]

The solution to this equation is (Baldone et al., 1997):

$$Y = [D(I-A)^{-1}]^{-1}A(I-A)^{-1} \quad (2)$$

Giving Y, the matrix of integrated ownership.

Then, we adapt this existing methodology to create a measure of the separation between ownership and voting power. This would allow to quantify the voting leverage that ultimate controlling shareholders exercise in Belgian companies.

This adaptation is based on majority voting. When a shareholder owns 50% of the voting shares – plus one – in a company, he actually controls all the

strategic decisions taken in the firm, since he can switch the votes on every decisions presented at the Shareholder Meeting. It is as if he has 100% of the votes. Accounting for that, we replace all the percentages above 50.0% by 100% in the original matrix of direct ownership A. But obviously, the sum of all control shares held over one company cannot exceed 100%.

Therefore, each time a control stake is equal to 100% in, say, firm j, minority shareholders of firm j have no control left, and they should therefore be put to 0. This leads to matrix AC defined by:

$$ac_{ij} = \begin{cases} 100 & if\ a_{ij} > 50 \\ 0 & if\ \exists i' \neq i : a_{i'j} > 50 \\ a_{ij} & otherwise \end{cases} \quad (3)$$

AC is referred to as the "direct control power" matrix. Applied to AC, equation (2) leads to YC, the matrix of "integrated control power". Dividing the entries of the matrix YC (integrated control) by their corresponding entries in the matrix Y (integrated ownership), we obtain a "separation ratio" between ownership and control, for each shareholder and each firm of the set. The "separation ratio" is the ratio between the percentage of control a shareholder can exercise, directly or indirectly over one firm and the percentage of the shares he actually owns in this firm.

5. Separation between Ownership and Control in Belgium

To identify ownership of Belgian listed companies, we built a square matrix A (1125 x 1125). The 1125 rows and columns of the database were the 140 listed companies, their 585 direct and indirect shareholders (firms and individuals), and the 400 other firms in which these 725 agents have shareholdings. Data are gathered for 1995.

Statistics below display the separation ratio for ultimate controlling shareholders only. An ultimate shareholder is a firm or an individual that is not controlled or owned by someone else in turn, either because is sits at the top of the ownership pyramid, or because his shareholders are too small to be identified. There is only one controlling shareholder per firm. An ultimate controlling shareholders is an ultimate owner having at least a control stake of 50%, or having a control stake of at least 25% when there are no other larger shareholder in the firm. Eight hundreds Belgian listed and non listed companies are included in the database.

5.1. Separation Ratios

Table 3. Separation ratio by firm type

Firm Type	Obs.	Min	P25	P50	P75	Mean	Max	Std. Error
All	315	0.79	1.00	1.38	1.99	1.70	11.09	0.89
Listed	77	0.79	1.00	1.46	1.98	1.74	5.94	1.05
Non listed	238	0.79	1.00	1.36	2.00	1.68	11.09	0.84

Table 3 displays surprisingly low separation ratios, compared to what is usually expected regarding the importance of pyramiding in Belgium.

Means ratios are limited, around 1.7 for all firm types and the distribution stay close to one until the third quartile. Maximum ratios are high but are due to exceptions as the distribution indicates. On average, ultimate controlling shareholders control about 70% more than what they actually own. But this can be independent from any pyramiding effect. Indeed, since the methodology sets 100% of control for each stake above 50% of the votes, a ratio of 1.7 can be induced by a direct stake exceeding the simple majority (100%/59%=1.7).

Table 4. Separation ratio by investor type

Investor Type	Obs.	Min	P25	P50	P75	Mean	Max	Std. Error
Domestic Firms	200	0.79	1.00	1.13	1.77	1.47	11.09	0.70
Foreign Firms	107	1.00	1.33	1.85	2.69	2.12	5.94	1.07
Individuals	8	1.00	1.50	2.00	2.00	1.75	2.02	0.46

Foreign companies are, by far, the ultimate investors having the highest ratios of separation between ownership and control. This is due to large French investors in Belgian holding companies, Suez and Paribas, mainly.

Individuals and domestic companies lag behind in terms of separation between ownership and control, with about 50% of extra-control on average for domestic firms. If we restrict the statistics to controlling owners, almost no individuals are left among ultimate investors, showing that this type of shareholders does not have stakes large enough to control firms.

The distribution changes also for this category, with higher ratios in first quartiles. A non-listed Belgian company (Imetal) ultimately controlled by Frère-Bourgeois at the end of a long ownership pyramid explains the maximum value (11.09).

5.3. Typology of the Large Controllers

Table 5. Largest Controllers Ranked by Portfolio Size

Name	Type	# firms controlled	# listed firms controlled	Average Ownership stake in %	Average Control Stake in %	Average Ratio C/O
Suez	FF (France)	57	13	24.9	69.9	2.6
GIMV (public)	NBF	24	2	46.6	49.1	1.1
Frère-Bourgeois	NBF	21	2	15.3	55.0	4.7
SWS (public)	NBF	15	1	49.1	74.4	1.5
SRIW (public)	NBF	13	0	57.8	64.8	1.1

NBF = Non Listed Belgian Firm, FF = Foreign Firm

Suez is one of the biggest holding companies in France. In 1995, the firm controlled 63% of the votes in the first Belgian holding company (Société Générale de Belgique – SGB) leading to the control or to significant voting stakes in 17 listed Belgian firms. Pyramiding is important here, since Suez controls a holding, that controls several smaller listed holding companies, controlling in turn several non-listed companies. Four levels of ownership are not an exception in that structure. It explains the relatively high average separation ratio observed here.

Figure 4 displays the simplified ownership portfolio of Suez, limited to listed Belgian companies. Note the complexities in the organisation chart, with different ways of ownership in same branches, and reciprocal ownership. Adding the participations in non listed companies would have complicated the picture further.

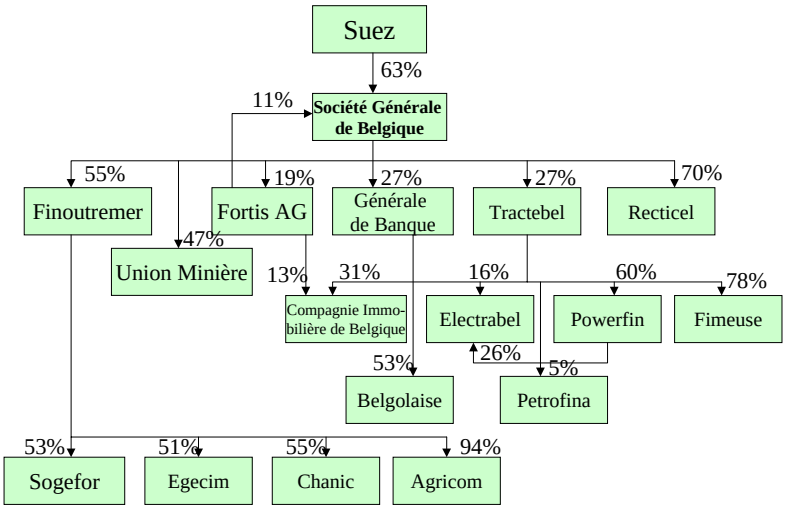

Figure 4. Suez control scheme in Belgian listed companies - 1995

Frère-Bourgeois is a non listed company controlled at 100% by an individual, powerful businessman in the country. It is the first intermediate level between him and his business activities in Belgium and abroad. Frère-Bourgeois is the second case of large owner using relatively high separation ratio. Here again, this is induced through pyramiding.

It is worth mentioning that these two very large controllers in terms of portfolio size are also those who have the largest separation ratios between ownership and control. These controllers are the two exceptions in the Belgian landscape of ownership structure around the listed Belgian companies. Moreover, they have been recently associated. Indeed, since December 1996, the Frère group has progressively acquired 11.5% of the capital of Suez, becoming that way its largest shareholder.

GIMV, SWS and SRIW are all public investment companies holding large portfolios of direct holdings, leading to very limited ratios of separation between ownership and control.

5.4. Results on Ownership Links

Figure 5 displays the ultimate stakes by rank. The mean stake approximates 21% and the median stake reaches almost 30% of the shares. This is quite high if one considers that these stakes are supposed to be indirect stakes, held from the top of the ownership pyramid. As we observed for voting blocks in direct ownership[61], the other ultimate owners lag far behind in terms of size.

[61] Direct ownership statistics are practically similar in 1995 and in 1999.

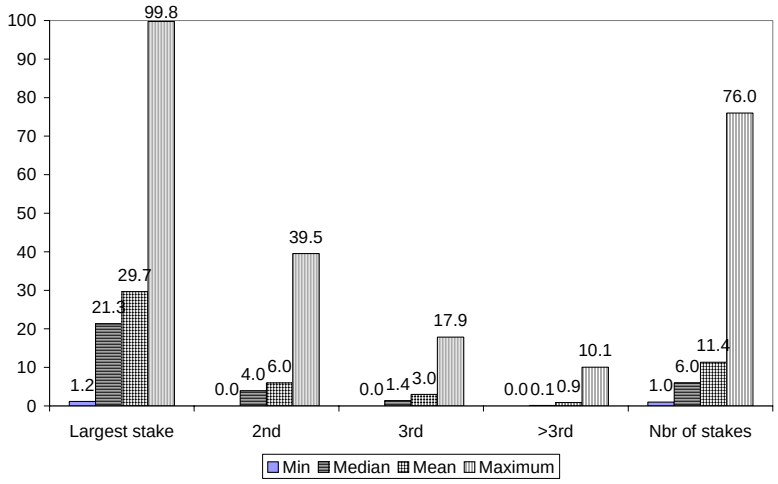

Figure 5. Ultimate stakes by rank of stake for all listed companies - 1995

There are on average 6 ultimate shareholders per company and the median of the distribution is 11. However, most of these owners have microscopic stakes in the company, of 0.01 % in most cases. This indicates the existence of numerous ownership links between Belgian companies, often small in percentage, but leading to a myriad of indirect ultimate shareholders having minuscule stakes. These ownership links can be either structured in pyramids or in networks.

We favour the network hypothesis. Firstly, because of the large size of the stakes owned by the first ultimate shareholder. Indeed, to get an indirect stake of 21% with only two levels of ownership, one must already hold two consecutive stakes of 45%, which is the average size of the largest direct shareholder of a listed Belgian company. It is thus likely that the largest stakes of ultimate shareholders are most often due to one or maximum two levels of ownership. On the other hand, tiny stakes of the further ranks are likely to be caused by a network of shareholdings. They are too small to be explained by pyramidal ownership structure set on purpose.

Secondly, the limited separations ratios found on average for Belgian corporate groups tend to confirm the network view of corporate ownership.

6. Separation between Ownership and Control: International Comparisons

The data used for the international comparisons have been provided by the various country teams of the European Corporate Governance Network (ECGN). Other results based on the same data are published in Barca and Becht eds. (2001).

6.1. A European Country Close to Belgium: Italy

Table 6. Separation between ownership and control in Italy

Type of controller	Individuals	Foreign	State	Non financial companies	Banks	Insurance	Other financial	Total
Ratio C/O	3.62	1.74	1.60	4.48	1.67	1.45	1.68	1.95

In terms of separation between ownership and control, Italy and Belgium have striking similarities. Italian results yield for controlling owners in listed companies:

Overall, the global separation ratio between ownership and control for listed firms is 1.95 in 1996 in Italy (compared to 1.70 for Belgium in 1995).

The ratio of separation between ownership and control tends to reduce along the years: it approximated 2.7 in 1993, compared to 1.70 in 1996. This trend seems to exist in Belgium also: 2.9 in 1992 according to Renneboog (1995), 1.70 in 1995 according to ours.

Separation between ownership and control is much larger in private groups than in state controlled groups. Like in Belgium: among large controllers, public ones have separation ratios close to 1, while investors leading to large separation ratios are all private.

6.2. A Particular Case in Continental Europe: The Netherlands

The number and the importance of anti-takeover measures makes the Netherlands an atypical country in Continental Europe. One of the most important one are the administrative office. A firm sets up an administrative office that holds original shares and issues depository certificates instead. Certificate holders receive dividends, but they have non-voting rights. The administrative offices only can exercise votes. It is the only anti-takeover device that has an influence on the separation ratio between ownership and control, but its influence is huge. Since available

data for The Netherlands are only direct ownership data of listed companies we can not estimate any pyramiding effect.

Separation ratio between ownership and control is defined as: $\frac{\%\text{ voting shares}}{\%\text{ordinary shares}}$

Table 7. Separation between ownership and control in the Netherlands

Type of controller	Individuals	Pension Funds	State	Industrial Firms	Banks	Insurance	Financial Institutions	Admin. Offices
Control stakes	33.70	9.13	37.00	8.96	12.60	33.60	24.93	68.25
Ownership stakes	30.83	8.22	37.00	8.69	13.07	32.50	23.09	0.00
Ratio C/O	1.09	1.11	1.00	1.03	0.96	1.03	1.08	∞

Besides the particular case of administrative offices who hold only votes and no ownership rights (so the separation ratio is infinite), there is no separation between ownership and control for all types of investors. However, the absence of indirect ownership does not allow approximating the pyramiding effect.

6.3. A Country from another Corporate Governance System: The United States

Ownership statistics of the 6559 US listed companies by the end of 1996 show namely that 90% of the maximum blocks held by beneficial owners are below 50% of the vote and that more than 99% of the median blocks held by beneficial owners are below 50% of the votes (Becht, 2001). It follows that, due to the high ownership dispersion, separation between ownership and control in the hands of the shareholders is extremely limited in the United States.

7. Explanations and implications of the separation between ownership and control

Separation between ownership and control does not correspond to a unique reality. It means that those having power in a firm are not those who own it, without mentioning their identity.

The issues and problems that this separation might generate can be dramatically different according the identity of those in control. First, it can be a shareholder, barely represented in terms of voting shares but levering his power through pyramiding of subsidiaries, through joint control, or through influence over the management, as it is the case in Italy and in Belgium.

On the contrary, control can be in the hands of managers, rarely shareholders at the same time, or with a few percentages of votes, but who take advantage of the great dispersion of ownership, the investors' passivity, and their presence in the top management to get control over the firm. This case is frequent in the United States and in Anglo-Saxon countries.

Finally, separation between ownership and control can result from particular mechanisms, such as complete separation of voting and ownership rights, like in the Netherlands.

Each situation has its own advantages and its own costs. In the case of Belgium or Italy, where corporate control is exercised by a dominant shareholder, advantages lie in a better monitoring of the management, more focused on profitability objectives rather than growth for itself. On the other hand, this is an important source of conflicts of interests between the dominant shareholder and the other minority owners of one hand, and between the controlling shareholder and the company itself on the other hand. Indeed, the dominant shareholder may manage the firm in function of its own interest rather and those of the companies of its group, rather than in the benefit of the firm and of all its shareholders. To remedy to these conflicts, one assists, in Belgium for instance, at the emergence of associations aimed at the defence of minority shareholders. Besides, the sanctions of the markets are reflected in an underpricing of the holding public companies in Belgium. Over the last years, the trend is to reduce the length of the control chains in the organisation chart of large Belgian holding companies.

But concentrated ownership in firms of limited size gives rise to another problem: the take-over threat. Once a dominant shareholder of a company decides to sell his shareholdings, it is the full control of the company that shifts hands. Many illustrations can be found in the Belgian economic landscape, with various financial and industrial companies being bought by foreign corporate groups between 1998 and 2001 (Delvaux and Michielsen, 1999). This phenomenon is shared by many countries in Eastern Europe since the economic liberalisation in the perspective of the European Union.

In the opposite case where corporate control is left in the hands of managers, the advantages are symmetrical: the firm enjoys a large autonomy of action, and, in particular, large opportunities for growth. Reasons are twofold: no shareholder fears to lose control through a capital raise, and the managers, whose private benefits include the utility of power, will tend to increase the size of the firm they manage. However, these large assembles are not always profitable, like some conglomerates in the United States.

Management autonomy does not only have advantages. In this context of great freedom of action, agency cost between managers and shareholders are inevitable: managers do not rule the firm in the greatest interest of the shareholders than

greatest interest of the shareholders than can not constraint them. Parts of the benefits are divested in the managers' interests, in the form of specific investments, excessive growth, abnormal compensations, and other types of private benefits. This gave rise to the wave of incentive contracts and other types of mechanisms aimed at aligning managers and shareholders 'interests. The most common types are salaries linked to the performance of the firm and stock option plans.

Finally, the special structures observed in the Netherlands, where firms are protected from the threat of hostile take-overs in the context of voting rights most often concentrated in foundations linked to the firm, cumulate advantages and disadvantages of both systems described above. Firm growth is favoured, since it is impeded neither by a large shareholder not willing to be diluted by a capital raise, nor by the objective of immediate profitability imposed by the stock markets. Next, since voting rights are concentrated, one could expect some activism from the shareholders. But this power is often concentrated in the hands of families close to the company, which can harm the interests of minority owners. Moreover, the general assembly has little way of pressure over the management, which may lead to significant agency costs.

No corporate governance systems, no given level of separation between ownership and control is particularly to banish or to recommend in itself. They have developed in response to various economic contexts, bringing specific answers to different needs. So, a concentrated ownership, monitoring the management actively is needed for younger firms or firms evolving in a changing environment. Inversely, mature companies will benefit from active managers, free from the burden of dominant shareholders and ready to undertake growth investments. Appropriate answers vary per country and through time. Evolutions observed recently in Corporate Governance in the United States and in Continental Europe attest from this state of fact.

8. Conclusion

This paper has developed a measure to quantify the extent of separation between ownership and control in any group of companies, resulting in a "separation ratio". The methodology uses a input-output matrix approach and elaborate on Brioschi et al. (1997) adding control considerations.

After giving a synthetic overview of the ownership structure in Belgian in 1999, we have provided summary statistics of separation ratios of ultimate controlling shareholders related to more than 800 listed and non listed companies in Belgium. Results show limited separation level between ownership and control, with a global average separation ratio of 1.7, and non significant difference between listed and non listed companies. There are, however, two large exceptions for two corporate groups using pyramiding as a strong separation device between ownership and control.

High concentration measures of ultimate ownership, microscopic indirect stakes and low separation ratios favour the network view of the structure of ownership links around the Belgian listed companies. Ownership in Belgium resembles much more a spider's web than a set of pyramids independent from one another.

Next, international comparisons lead us to believe that similar Corporate Governance systems give rise to similar separation ratios like in Belgium and in Italy. Inversely, countries from very different Corporate Governance systems, like the Netherlands and the United States display strikingly different situations in terms of separation ratios. Advantages and weaknesses of those structures have been underlined and discussed, showing how each country brings its own answers to specific corporate needs met at the time.

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