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Opening the “black box”: how internal reporting systems contribute to the quality of financial disclosure

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Abstract

Purpose - Institutional investors use the information disclosed by listed companies to analyze the performance of their investments. This article tries to open the “black box” of the construction of financial disclosure by analyzing the internal reporting systems of firms with reference to the information disclosed.

Methodology/approach - Using indexes, the quality of the financial disclosure and the internal reporting systems are measured, and analyzed with a view to finding some links between them. It is expected that the quality of disclosure is dependent on the quality of the internal reporting.

Findings - Complex interactions between internal reporting and financial disclosure are revealed, which leads to the identification of a typology of practices. The dependence of the relationship may be troubled by the willingness of the firm to communicate, or by the internal methods of control. According to the various cases, different levels of usefulness of the information for the investor are expected.

Originality/value – This paper is a first attempt to analyse information disclosed by firms with regards to the internal information at their disposal.

Key words - Reporting, financial communication, quality of information, public and private disclosure, indexes

Paper type - Research paper

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1. Introduction

Institutional investors use the information disclosed by listed companies to understand the strategic and operational key factors explaining their performance (Eccles et al., 2001). This information has to possess a number of features or qualities that are essential to investors in order to ensure its usefulness.

Following the accounting harmonization in Europe, in 2005, which requires all EU listed companies to adopt international accounting standards (IAS/IFRS), commission regulations must assess whether the application of accounting standards in financial statements offers a true and fair view of the financial position and performance of a company.

The commission must check whether the financial information meet the criteria of “understandability, relevance, reliability and comparability” in order to make economic decisions and assess the stewardship of management” (Article 3, Regulation No.1606/2002). In fact, these requirements have been laid out by international regulations (IASB, IAS1) in terms of the following criteria: representativeness or fair view (the information accurately reflects the economic reality of the company); substance over form; reliability (the information is exempt from fault or error); relevance (it allows the investors to make decisions) including timeliness or accessibility (the information reaches its destination in due time); intelligibility; comparability.

While many researchers have studied the quality and the value of disclosed information (Copeland and Fredericks, 1968; Vickrey, 1985; Chow and Wong-Boren, 1987; Cooke, 1989; Bradbury, 1992; Raffournier, 1995), as far as we are aware, no one has tried to understand how this information was put together within the company. The information comes from internal financial and managerial accounting systems, especially from the company’s internal reporting. To ensure the quality of disclosure, the information should necessarily be part of the reporting system and include the required qualities. Bushman and Smith (2001) thus point out:

In spite of distinctions between internal and external reporting, there is likely to be a positive relation between the managerial accounting information reported internally and the financial accounting reported externally [...]. Hence, managerial accounting systems are a potentially important omitted correlated variable.

This paper specifically addresses this call. The focus of this article is thus to compare the quality of the information issued via internal reporting, and the quality of the information disclosed to investors. We contend that a community of practices should exist according to the link between these. To investigate this, the article intends to compare and assess, from a sample of French listed companies, financial communication practices and internal reporting systems by measuring their quality. The quality measure of both systems will then bring out a typology of practices, suggesting different possible use of information disclosed.

This paper makes two contributions: theoretical and practical. It first intends to contribute to both financial and managerial fields of accounting research. Indeed, financial scholars are more concerned with the reaction of shareholders to the information disclosed, with no interest in the internal reporting mechanisms of firms. On the contrary, management accounting research is interested in methods of measuring performance from an internal point of view, without any consideration for external views or needs, particularly those of investors. This paper tries to fill this gap.

From a practical point of view, we intend to reach practitioners as well: indeed, we believe that the more concern the financial controller has in terms of the needs of investors in matters of information, the more he will try to gather the “right” information from inside the firm, for the benefit of the internal management. On another hand, the closer the investor is to the firm, the easier it will be for him to collect the information he needs.

The remainder of the paper is organized as follows: section 2 elaborates the theoretical context, in particular highlighting the criteria for quality for both internal reporting and financial communication practices. Section 3 introduces the research’s methodology. Section 4 presents and discusses the results. Section 5 concludes and draws the implications of the findings for future research.

2. Quality of financial communication practices and internal reporting system

2.1 Quality requirements for information disclosure practices.

Researchers generally agree on three main points in terms of measuring the quality of information disclosure practices: the information extent, the vectors of disclosure, the periodicity and deadlines. Following signal theory (Spence, 1974), firms may be interested in standing out from their competitors by disclosing voluntary information through voluntary vectors, and according to voluntary deadlines (Verrechia, 1983; Dye, 1986; Darrough and Stoughton, 1990; Healy and Palepu, 2001).

Regarding extent, institutional investors expect to have access to voluntarily released information from company managers, including management control information (Cavélius, 2007). Investors can then control their investment results, make decisions and play a cognitive role in utilizing new knowledge. Company managers must then submit and explain the information in private: this allows for two-way dynamic exchanges and learning between the parties, as well as facilitating investors to give their own point of view and perspectives (Holland, 1998). “This integrated approach to corporate disclosure should end up increasing a company’s value” (Hutton, 2004). The disclosed information thus includes: segment information (partially required by IFRS 8 standards), forecast information (the budget becomes a tool for improving information disclosure, according to Miroir-Lair (2007)) and non-financial information (Decock-Good et al. (2004) and Cauvin et al.’s (2006) studies have established a list of the non-financial information generally disclosed). The presence or absence of this particular information within public disclosure determines the quality of the extent (Meeks et al., 1995).

Concerning the vectors of disclosure, Holland pointed out, in his 2005 study, the four options company managers may choose:

- Public disclosure: including mandatory as well as voluntary information; the company manager shows his willingness to disclose information (Jensen and Meckling, 1976), thus distinguishing himself from his competitors (Spence, 1974);
- Semi-private disclosure: consisting in private discussions revolving around publicly disclosed information and interpretation, clarifications and answers to questions raised;
- Private disclosure: consisting of in-depth discussions on strategy elements or operational aspects. This type of disclosure is rather informal and not necessarily supported by figures; yet it is essential to get a good grasp of the strategic and operational reality of the company.
- Secrecy: no information that could lead to competitive or managerial disadvantage is disclosed; a reluctance to disclose uncertain events can also be added to this.

The quality of disclosure vectors can be measured thanks to the number of different channels of communication used: the Internet, conference calls, investor and analyst meetings, as well as one-to-one meetings with company managers, etc. (Depoers, 1999).

As far as deadlines are concerned, the French stock market Authorities, AMF, established compulsory disclosure deadlines in January 2007 (Transparency Directive): half-yearly full financial reports have to be disclosed within 60 days following the end of the period, and a quarterly financial disclosure (general description of the financial situation and segment turnover) must be provided within 45 days of the end of the quarter. The company can decide to willingly release quarterly financial reports in a shorter time period. A study by

PricewaterhouseCoopers in 2005 highlighted that the average time limit for quarterly publication is 29 days for SBF 120 listed companies (stock exchange index including the 120 most capitalized firms on the Paris Stock Exchange). We will consider this as the time limit for voluntary publication. Indeed, the more frequently a company releases information in short time periods, the more valuable its disclosure is. Investors need to be informed regularly, and in a timely manner in relation to the events mentioned. For example, in the case of EADS, its shareholders were informed too late that the company's subsidiary, Airbus, was facing huge delays in the production, and this made the unexpected losses worse.

The previously specified requirements allow for the assessment of the quality of information disclosure in terms of extension, but not in terms of reliability or relevance. We may consider these aspects from an internal perspective through a close examination of the way the information is brought together in the company's internal reporting.

2.2 Quality requirements for company reporting systems

In order to meet the quality requirements of information disclosure, all company players must participate in the reporting. Beau and Pigé (2007) point out that "the financial information has gone beyond its original sphere of activity to reach and involve the operational managers as well".

Firstly, the financial and management accounting consolidation systems must be merged to ensure the reliability of the information. "The processes of systems merging tend to provide the whole company with single, formalised and controlled information," (Beau and Pigé, 2007). The segment information obtained, along with the accounting information, is made accurate thanks to the international standards (Sunder, 2002), and the fact that the information is audited (Hope, 2003; Richard, 2003). Consequently, potential risks may be identified. However, this information remains past-oriented, urging investors to pay more attention to the forecast information included in the company's budget.

To ensure the reliability of the forecast information, strategic targets must be the result of exchanges between operational entities and the head office. This idea echoes Goold and Campbell's strategic control model (1987), as well as Simons's vision (1987). The head office becomes involved both in the budget process and budget control, thus reducing the budget slack of the operational managers (Antle and Fellingham, 1997). This model also helps to identify the strategic control indicators to include in the reporting. Operational managers must become familiar with these indicators in order to drive strategy into operations. This is the balanced scorecard concept (Kaplan and Norton, 1996), whose importance has been stressed by Malina and Selto (2001) in the implementation of a strategic control. The non-financial indicators resulting from the driving of operations must be added to the strategic indicators.

According to Ittner and Larcker (1998), accounting-based indicators cannot measure performance alone. In 1996, researchers began to study the contribution of non-financial indicators, or key performance indicators (KPIs), which were usually identified as more representative of economic reality than financial information (Hemmer, 1996). Their presence within the company's reporting is questioned since, according to Arya et al. (2005), managers will prefer standardized measures which are much simpler and focused on comparability. These non-financial indicators are by definition linked to the company's activities and cannot always be standardized, especially in the case of a particularly diversified company. However, Bollecker (2003) has pointed out that the non-financial information within the management control systems improves the power control of the line authority. These results can be

compared to the presence of non-financial information in the reporting, which helps the head office to better understand and control the performance of the entities. In the case of a company with diversified activities, the designing of the reporting systems is more complicated because the selected non-financial data differs from one activity to another.

Along with the requirements for the reporting extent, financial markets push for shorter deadlines with regards to the release of companies' results (Mottis and Zarlowski, 2003). This also affects the internal reporting deadlines. According to Pigé (2005), the new technologies (ERP, and reporting and consolidation tools) enhance gathering and data processing capacities. Apparently, the systems no longer slow down the availability of the reporting information. Reducing the time limits and the periodicity of account closure is nonetheless essential for quick publication of the results. According to management control professionals referred to here, in order to meet external deadlines firms generally close their accounts monthly, within 15 days after the end of the month. We will consider this deadline as the quality criterion.

Having defined the essential requirements for meeting financial disclosure demands, the following table summarizes the criteria by type and nature of the information inside the reporting.

Table 1: Quality requirements of the reporting information

	Reliability criteria	Representativeness criteria	Relevance criteria	Accessibility criteria
Financial information including management control accounting	Unique information system – information established in accordance with international standards and audited by an external independent audit firm.	Management accounting information linked to key success factors.		An ERP that facilitates information accessibility – this is a single concept for the entire firm except when the activities differ from one branch to the other; time limit and periodicity of information: monthly reporting within 15 days after the end of the period.
Non-financial indicators (KPIs)	Written calculation rules – indicators followed at the executive level and internally controlled.	Non-financial indicators included inside the head office reporting – the right number of indicators must be selected.	Selected by the head office in relation with the operational managers, they are locally-used indicators, each measuring a strategic or operational target in association with traditional financial measures.	
Forecast information	Captured in pre-established forms and obtained thanks to a top-down process, plus internal control of the estimations.		Set by taking strategy into account – in consultation with the operational managers, a re-estimate is also included.	

2.3 General hypothesis

The previous review allows us to distinguish quality criteria for both disclosure practices and internal reporting systems. We can say that the quality of the disclosure depends

on the presence or absence of selected items in a general set of information, including voluntary information. But, according to the extant literature, we can say nothing regarding the qualities of reliability, relevance or representativeness, except if we have access to the internal reporting of the firm, and may measure the quality as mentioned before. Besides this, we are currently not able to find a link between both: do firms having “good” communication practices have a high level of internal reporting quality? May some firms disclose quality information without high levels of internal reporting quality? Do some firms have quality internal reporting systems whilst not disclosing the information? Our purpose is to answer these questions. We now present the methodology used in the current study.

3. Research method

3.1 Suggestions for a tool measuring the quality of the information

Finance researchers have often used the indexes (or scores) method to measure the presence of items in a system (Raffournier, 1995; Meeks et al., 1995; Botosan, 1997; Ahmed and Courtis, 1999; Prencipe, 2004). This method is therefore considered as a valid measuring tool. It consists of a definition of a list of items selected according to their representativeness of the system to be measured. The grade “1” is attributed in the case that the item is relevant, and “0” is attributed if not. After the systems have been assigned a grade, they can be compared to one another. This also allows for the creation of groups and the testing of variables in accordance with the grades received. In order to compare information disclosure practices and internal reporting systems, both aspects have to be measured.

Concerning information disclosure practices, we will use the indexes suggested by Meeks et al. (1995), Michaïlesco (1998) and Depoers (1999, 2000) by adapting them to our context and to the new standards. We have identified a list of 65 items to measure the quality of these practices. The items measure the previously mentioned main themes for quality (extent, vectors and periodicity) and are selected according to the required qualities (see section 2.1). The final number of items is not fixed a priori, and depends on the required elements. For instance, to measure the type of disclosure, we have set up a list of six possible vectors, each of which is an item.

To our knowledge, the indexes method has never been used to qualify internal reporting systems. Thus, we would like to suggest a measure for the reporting system based on items selected in accordance with the quality requirements mentioned above (see section 2.2). The 55 finally selected items measure reliability, representativeness, relevance and accessibility. They are being selected in accordance with Table 1, which specifies the expected features for each type of information. Considering the experimental aspect of the tool, this list of items has been finalized in collaboration with management control and reporting¹ professionals. The list of items was presented to a sample of professionals, who amended the list by suppressing irrelevant items or adding missing items according to their view.

These two indexes will now permit the measurement of the quality of reporting systems and financial disclosure practices with regards to a sample of listed companies.

¹ The full list of items for each index is available upon request to the author.

3.2 Samples and score indexes method

The adopted methodology is quantitative. It leads to the constitution of a sample of contacts to whom the two questionnaires will be sent: one questionnaire concerns financial disclosure practices and the other focuses on the characteristics of internal reporting systems (refer to Appendix B and C).

To minimize the variances linked to different practices, and to ensure reliable data, we have limited the population studied to the 250 largest French firms (except for the banking and insurance sectors, which have different practices in terms of internal reporting) listed on the 2005 Paris Stock Market (SBF 250 index). Previous studies have collected between 50 and 75 useful questionnaires, and thus we sent the two questionnaires to 150 randomly selected firms, expecting a minimum of a one-third return rate.

In the end, 55 firms returned both questionnaires. The sample distribution by index and branch of industry can be found in Appendix A, along with a list of participating firms. The questionnaires were used to grade each criterion according to the answer received. In fact, each question was specifically related to one item. According to the answer, the criterion on a specific item was considered to be valid or not. The general method is as follows: for each criterion, an answer is expected, and is attributed the grade “1” if the system or the practices are in accordance with the criterion, or “0” if not. The grading is the result of a rigorous process with few errors of judgement since only one person deals with all the questionnaires.

Furthermore, the highest grade possible varies between the firms: some criteria do not apply to certain firms and are therefore removed from the maximum grade. This is in accordance with Meeks et al.’s (1995) method.

We obtain the N grade with the following formula:

$N = \frac{\sum_{i=1}^T Ni}{NT}$	<p>Where:</p> <p>Ni = grade obtained by criterion i, equal to 1 or 0</p> <p>i = number of the item assigned with a grade 1 to T value</p> <p>T = number of the last item after removal of criteria irrelevant to the firm</p> <p>NT = amount of items assigned with a grade</p>
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The grade obtained is a ratio value between 0 and 1. This grade has no value in itself; it merely helps to differentiate the selected firms from one another in order to establish a sub-category of samples whose main features will highlight the typologies.

However, the dichotomy of the system (0 or 1) makes significant the number of firms conforming to the expected quality. For instance, a grade of 77.3% (or 0.773) obtained from criterion number two indicates that 77.3% of the firms in the sample explain their management methods in writing.

Considering the targets of the present study, we decided not to weigh this list of items. Indeed, the list has to adapt to every firm and not to a particular user, and each criterion participates equally in the definition of quality here. In addition, it has been suggested in Meeks et al.’s work (1995) that companies who are better at disclosing “important” items are also better at disclosing “less important” items. Moreover, the study by Chow and Wong-Boren (1987) proved that the results vary slightly between lists of weighted or unweighted items.

3.3 Analysis of the links between the two sets of score indexes

To analyze the two sets of measures, we use some descriptive statistics to analyze each of them separately. In order to highlight possible links between the variables, we use the Pearson correlation test. Before any calculation, we systematically check with a scatter plot whether or not a linear relationship exists between the two variables. The correlation coefficient, r , is a scalar quantity in the interval $[-1.0, 1.0]$, and is defined as the ratio of the covariance of the sample populations to the product of their standard deviations. The correlation coefficient is a direct measure of how well two sample populations vary jointly.

A value of $r = +1$ or $r = -1$ indicates a perfect fit to a positive or negative linear model, respectively, such that if one variable is known, the second can be accurately predicted. It consequently indicates a high degree of correlation.

A positive coefficient indicates that if one variable increases, the other increases also. A negative coefficient indicates that, if one variable increases, the other decreases.

A value of r close to 0 indicates a poor fit to a linear model, and no relationship between the two variables.

By using this test, we expect to answer our research question regarding the possible link between a high level of internal reporting quality, and good communication practices.

3.4 Constitution of sub-groups by the median and statistical cluster analysis

The firms can be ranked with the grade they have obtained for quality. The sample can now be cut by the median, thus supplying two sub-categories of firms: the group of firms who score above the median is considered to be in possession of quality management control information (or quality financial disclosure practices); in comparison, the other firms possess management control systems (or financial disclosure practices) of the lowest quality. By cross checking both grading systems, we get four firm sub-groups: quality disclosure and quality reporting, quality disclosure and poor reporting, poor disclosure and quality reporting, poor disclosure and poor reporting.

As a means of control with regards to the obtained results, we decide to proceed to a statistical cluster analysis. This procedure attempts to identify relatively homogeneous groups of cases based on selected characteristics. In hierarchical clustering, an algorithm is used that starts with each case in a separate cluster and combines clusters until only one is left. The variables to be used for cluster formation here are the disclosure quality index, and the internal reporting quality index. The variables are ordinal numbers between 0 and 1, with six decimals. The cases are the 55 firms. The cluster method chosen is the between-group linkage. Using the smallest average distance (measured here by the squared Euclidean distance) between all group pairs, the two groups that are closest are combined. The process continues until all cases are grouped into a large cluster.

The output of running hierarchical cluster analysis gives results very near to the ones obtained by the use of the median cut, as we can see in the following section. Indeed, it appears from Graph 1 that seven firms are not included in the same group, using either the median or the cluster method.

From here, we can analyze in a descriptive manner the main features of each sub-group. We can expect each sub-group to have different approaches to disclosure practices, and that investors will, accordingly, be in a situation where they are more or less able to control and manage their investment.

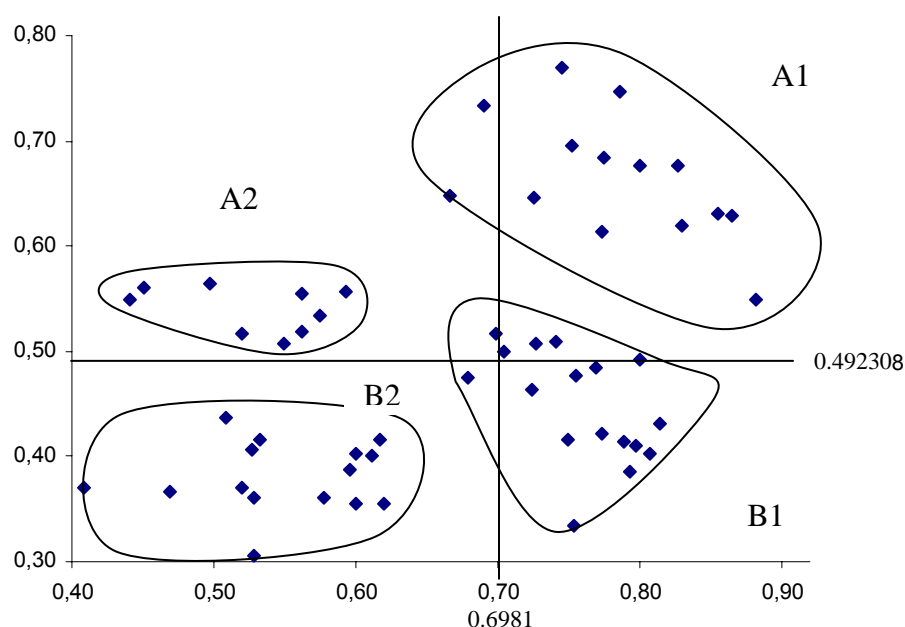
4. Results: focus on the typology of practices

4.1 General view of the cluster analysis and median cut of the selected firms

The following graph shows the position of the cases according to the two axes quality of reporting, and quality of disclosure. Each firm is placed according to its obtained scores. The lines of both medians are indicated, constituting four sub-groups. On the same graph, the curves show the four clusters obtained through the cluster analysis (dendrogram shown in Appendix D).

It is noticeable from the graph that only a few firms are placed differently, due to the fact they are very near the median score. We can say that some of them are probably in a hybrid position, either because their scores are near the median, or because they are on the way to changing their practices.

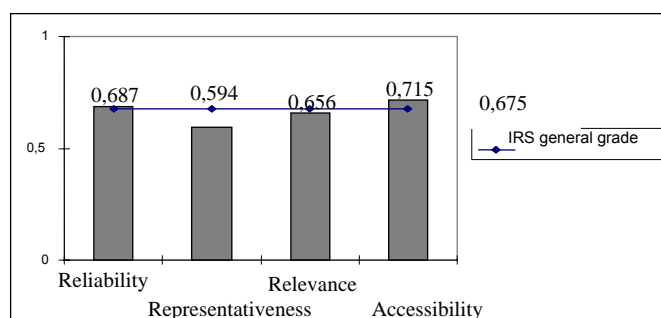
Graph 1: Clusters overview



4.2 Descriptive analysis of the reporting systems of the selected firms

The firms' average IRS (internal reporting system) grade is 67.5% (ranging from 40.8% to 88.2%).

Graph 2: Reporting system quality overview



The top priority for the firms in the sample is to ensure a good periodicity concerning the local units' information feedback to the head office, through integrated and interfaced tools. They can then make sure that the information is reliable thanks to the implementation of internal control procedures.

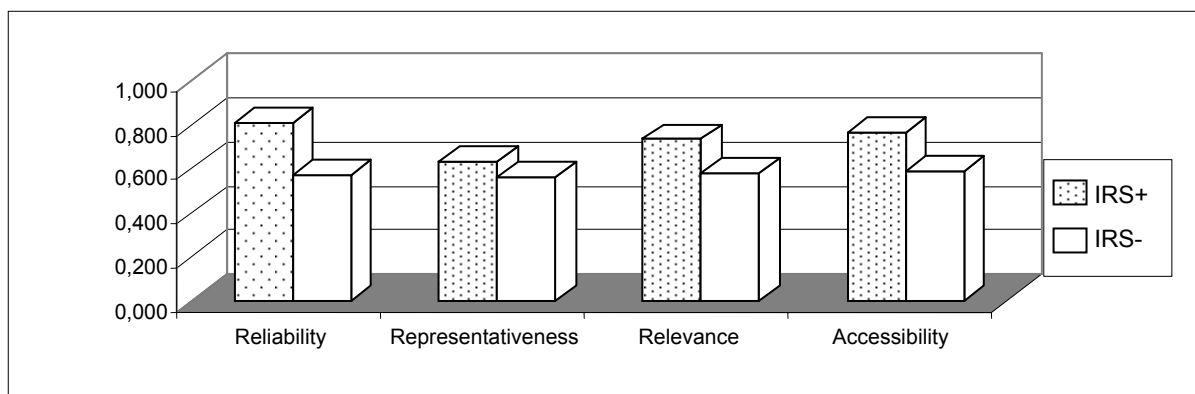
Firms are able to link strategy and control during the finalization stage (for instance Strategy and Control Departments work in common, formulating an integrated plan and budget, using indicators selected by the head office). But they find it hard to implement strategic controls because they mostly choose financial indicators which do not allow them to secure the parameters linked to the activity, and so the supervision of strategic control. Finally, the differences between financial accounting and management accounting still exist in many firms, so that the internal information is not sufficiently oriented on external needs.

Each firm is assigned with a grade, which allows us to classify them by the median of the sample: above the median, they are assigned to group 1, named IRS+; below the median they are group 2, named IRS-. We can comment on the analysis of the differences in the firms' characteristics as follows:

- The distribution by branch of industry does not highlight any fundamental difference between the sub-groups. Unsurprisingly, the sectors are equally represented on the whole, and there is apparently no reason that the industry branch affects the quality of the internal management accounting system.
- Size variables, however, indicate that internal information of better quality predominates for big companies (Student Test's comparison of averages for both groups 1 and 2 are significant at the level of 6%): 12 out of 14 firms from the CAC40 Index (the forty most capitalized firms) belong to group 1, whose average turnover is 9,452 million euros compared to 3,545 millions euros for group 2.
- The "floating" variable, representing the shareholder percentage belonging to the public (including institutional investors to the exception of those possessing a capital percentage above 5%), indicates that the percentage of public shares are more important for group 1. The T test confirms these observations at the level of 1%.
- Consequently, the grades assigned to group 1 are on average higher for each quality criterion, with the highest grade having been assigned to reliability, which is significantly higher than the grade given to group 2.

These last observations enable us to more closely analyze the differences that exist between both groups regarding the grading assigned, in order to highlight certain characteristics relative to each sub-group.

Graph 3: Comparison of reporting system quality between IRS+ and IRS-



Two types of reporting can be identified:

The reporting system of the firms belonging to group 1 can be defined as dynamic: the system facilitates interactions between the head office and the operational levels; it is a communication tool made to convince; it is a management tool as it comprises specific indicators, linking strategy and operations together, and is defined in association with the operational managers. This reporting is considered as being more relevant because it includes information giving a representative and relevant view of the activity. Furthermore, emphasis is put on reliability (development of written procedures, implementation of internal control processes and uniqueness of information). Finally, periodicity and information reporting deadlines concerning the firms in this sub-group are much shorter.

The reporting system of the firms belonging to group 2 can be defined as static: this suggests a weaker interaction between the head office and the operational levels, with reporting being perceived as a performance check tool, including a majority of classic financial indicators that are mostly managed and calculated by management controllers. The periodicity and information reporting deadlines are a matter of control rather than management.

The better the internal reporting quality is, the better the quality of the disclosure should be. The analysis will continue by focusing on the grading of financial disclosure practices.

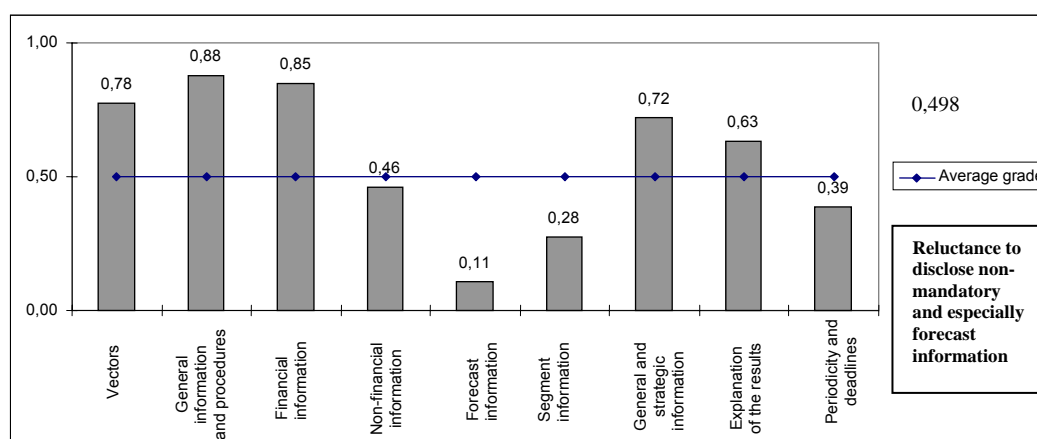
4.3 Analysis describing the financial disclosure practices of the selected firms

The firms from the selected sample have been assigned with the average grade D (disclosure) of 49.8% (ranging from 30.6% to 76.9%).

With regards to Graph 4, the firms in the sample generally use the vectors at their disposal. If they comply with international standards by actively disclosing the usual financial and strategic information, they are much more reluctant to release voluntary information such as segment information (which international standards made mandatory), forecast information or non-financial information, as shown by the grades obtained for these criteria. The periodicity and disclosure deadlines do not meet the investors' expectations, even though these deadlines remain shorter than the legal ones. This shows that the public disclosure's orientation is mainly conformist.

However, the firms are willing to provide complementary information in private, as well as any other element that could help to explain the publicly disclosed figures. This suggests that management control information is more likely to be exchanged in private, even if private and public communication work together, as Holland's (1998) study results showed.

Graph 4: Overview of the quality of financial disclosure practices

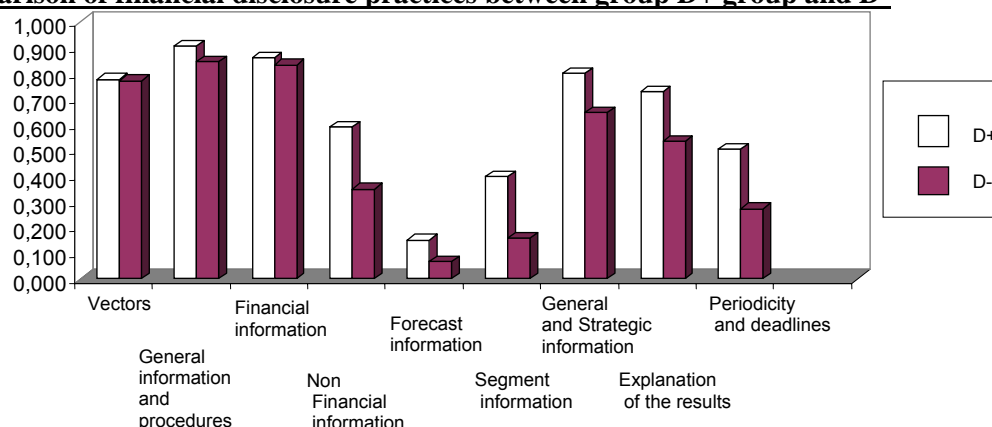


The results are nonetheless contrasted when we look closely at both group practices provided by the sample median: the ones that score above the median are classified in group A, entitled D+; the ones below the median of the sample in group B are entitled D-.

The characteristics of the classifications can be explained as follows:

- Just as before, the distribution by branch of industry does not highlight any fundamental difference between the sub-groups. Again, unsurprisingly, the sectors are equally represented on the whole and there is apparently no reason for industry branch to be considered a key variable with regards to the quality of information disclosure.
- Size variables, however, indicate that publicly disclosed information of better quality predominates for big companies, (Student's test of comparison of average for both groups A and B is significant at the level of 3%).
- Contrary to the results regarding the internal information, the "floating" variable is not significant at the usual level of the Student's test, although it is higher on average for sample A firms.
- Consequently, the grades assigned to group A are on average higher for each quality criterion, yet we can notice that the highest quality grade concerns non-mandatory information.

Graph 5: Comparison of financial disclosure practices between group D+ group and D-



The groups cannot be differentiated through general and financial information, or with reference to public disclosure vectors: the firms, even those who communicate the least, use new media.

Both new sub-groups can be defined as follows:

The financial disclosure practices of group A firms can be defined as voluntary and active. The nature of the publicly-disclosed information indicates that the firms are willing to keep their shareholders well informed: they disclose non-financial information (59%), forecast information (15%) and segment information (40%). They use diversified vectors of disclosure, including private ones. Firms express a desire to explain information, help interpret the results, and share a common vision by holding private or one-to-one meetings and site visits. Lastly, firms following these practices accept voluntary disclosure (within 30 days) along with frequent meetings. In addition, 26% of firms disclose quarterly results. Communication is perceived as an exchange between investors and general managers.

The second type (group B) of public disclosure can be defined as conformist and goes along with private communication practices, which at best can be considered passive, and at worst secretive. This group is characterized by permanent secrecy regarding the extent of information disclosed (this is mostly mandatory information; 35% disclose non-financial information, only 7% disclose forecast information and 16% disclose segment information). The public means of disclosure are limited and the deadlines for results availability are usual (60 days).

In the case of passive and private communication, the results are reluctantly explained and questions barely answered: the attitude is more in line with conforming to best practices. Firms regard communication as a compulsory step to winning the market's favour. Private and secret disclosure reflects a withdrawn attitude characterized by the release of minimum information, and fear of competitors: indeed, minimum compulsory meetings are being organized. In other words, communication is perceived as a constraint.

We can draw a parallel between this typology and Gibbins et al.'s, (1990), which opposes opportunistic disclosure (taking into consideration the advantages that disclosure can bring) and ritualistic disclosure (wishing to meet the standards). The results are also similar to those identified by Holland (2005).

Active and voluntary communication happens to be the qualities required by shareholders regarding disclosed information. This explains why the firms included in this sub-sample are likely to publicly disclose information of a better quality, management information in particular, considering the previously selected criteria.

4.4 Analysis of the results of the correlation test

Graph 1 showed that the two sets of variables do not seem to be correlated. The calculation of the correlation coefficient is 0.38, with a significance level at 0.32, which indicates a very low correlation. This is the first important result: an internal reporting of quality does not necessarily enhance good communication practices. Similarly, a reporting of poor quality does not necessarily mean bad communication practices.

If we consider each sub-group separately, we can expect better correlations between the two variables. The calculation of the correlation coefficient for each sub-group brings the following results:

Table 2: correlation between A1/A2/B1/B2

	A1 : IRS+ / D+	A2 IRS- / D+	B1 IRS+ / D-	B2 IRS- / D-
R	0.13	0.47	-0.08	0.37
Degrees of freedom	13	10	10	14
Significance	0.32	0.6581	0.6581	0.5742
Probability	0.01	0.01	0.01	0.01

The two sets of variables appear to be uncorrelated in the four sub-groups. This may indicate that the sub-groups are too small for the results to be significant. It can also be noted that the indexes are complex, and have to be analyzed more deeply.

As we assume an internal reporting of quality should lead to good communication practices, and vice versa, we should be able to find correlations between the variables of A1 and B2 when put together. Similarly, the variables of A2 and B1 together should be negatively correlated. From the calculation, we obtain the following results:

Table 3: correlation between A1B2/A2B1

	A1 : IRS+ / D+ B2 IRS- / D-	A2 IRS- / D+ B1 IRS+ / D-
R	0.83	-0.57
Degrees of freedom	29	22
Significance	0.4093	0.4921
Probability	0.01	0.01

This is the second important result. In the first sample, the better the quality of the internal reporting is, the better the communication practices firms have. On the contrary, reporting of poor quality is associated with limited communication practices.

In the second sample, on the contrary, a reporting of quality does not mean that firms communicate this information externally – in this instance, firms provide poor-quality disclosure. Similarly, firms may have good communication practices despite poor internal reporting quality. The two variables are negatively correlated.

The relationships seem to be more complex than expected; this suggests a need to follow the analysis a little further. Thus, the constitutive elements of each score are analyzed more deeply as follows.

First, the internal quality of relevance and representativeness is compared to the disclosure of voluntary information (non-financial information, forecast information and segment information). This leads to new scores, to which the correlation test is applied. From the calculation, the following results are seen:

Table 4: correlation between relevance of the reporting and voluntary disclosure

	A1: relev. + / vol. discl. + A2: relev. - / vol. discl. - B2: relev.- / vol. discl. -	A1: relev. + / vol. discl. + B2: relev.- / vol. discl. -	A2: relev. - / vol. discl. - B1 relev.+ /vol. discl.-
R	0.69	0.70	0.08
Degrees of freedom	31	29	22
Significance	0.4093	0.4093	0.4921
Probability	0.01	0.01	0.01

It appears that, despite good results in communication practices, due to good scores in terms of vectors used and deadlines, A2 firms may be compared to B2 firms in terms of poor quality in voluntary disclosure. Indeed, A2 firms provide poor internal reporting information in terms of relevance, and do not allow for the disclosure of voluntary information. This is the third important result. In contrast, it appears here that good communication in terms of content (presence of voluntary information) is possible if the internal reporting is of a good quality in terms of relevance (group A1).

The A2B1 firms both exhibit poor quality of voluntary information disclosure. However, A2 firms do not provide relevant information in their reporting, while B1 firms have this information but do not disclose it. This is why the variables of relevance and voluntary information disclosure are independent in A2B1.

We then try to find links between internal quality of relevance and private disclosure quality. This score includes vectors of communication, content and periodicity and deadlines.

Proceeding to the calculation, the following results are obtained:

Table 5: correlation between relevance of the reporting and private disclosure

	A1: relev. + / private discl. + B2: relev.- / private discl. -	A2: relev. - / private discl.+ B1 relev.+ / private discl.-
R	0.62	-0.71
Degrees of freedom	29	22
Significance	0.4093	0.4921
Probability	0.01	0.01

Analysing A1 and B2 together confirms the former results: the quality of private communication increases with the quality of reporting.

For the second sub-sample, a negative correlation is found, meaning that relevant information may not be disclosed even in private meetings, while a good score in private disclosure is possible even with poor internal reporting quality.

Finally, we compare the quality of accessibility of the internal reporting, and the deadlines of the external communication. The correlation test gives a 0.57 score on the sample as a whole, which indicates that the better accessibility score is, the shorter the deadlines will be for the external communication.

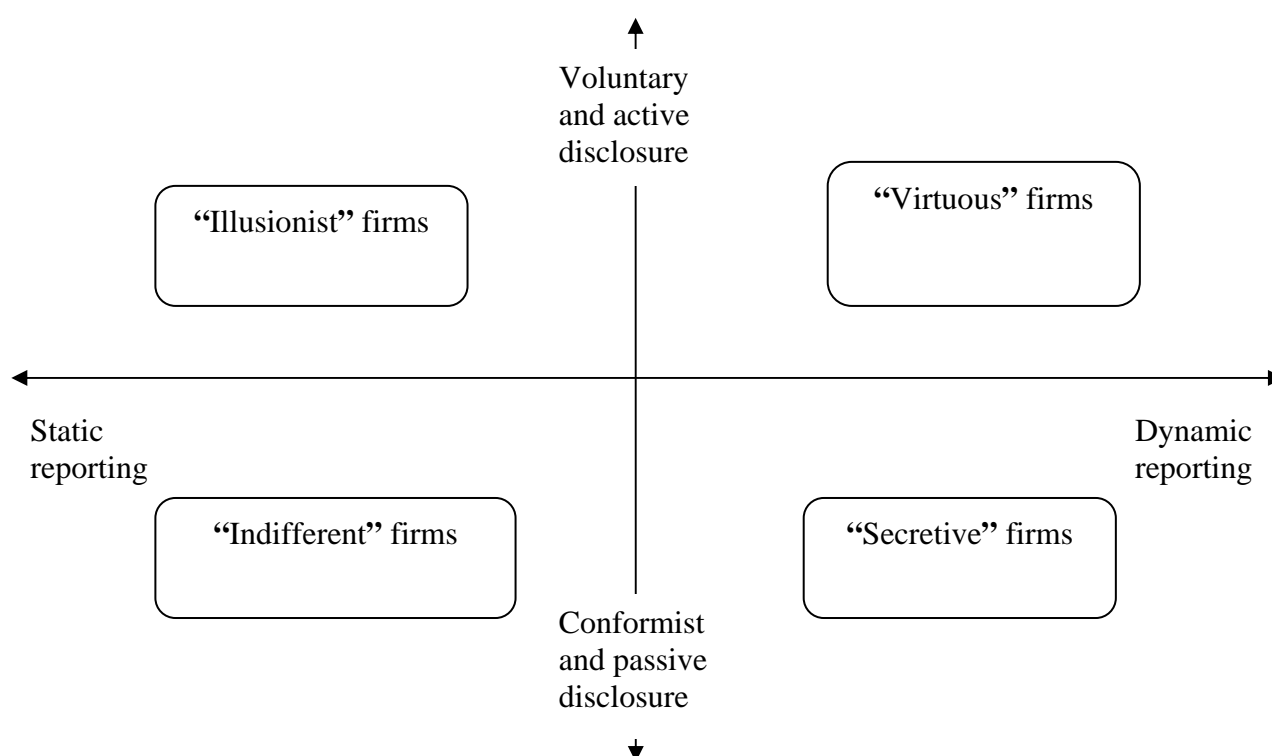
4.5 Synthesis of the results and interpretation in terms of the information's value for the investor

By intersecting both typologies, we formed a matrix and created four sub-groups. From the correlation analysis, some links between variables – or lack thereof – have been highlighted. Our findings are synthesized in Table 6. The existence of distinct groups formed by measuring the quality of practices suggests different potential uses for the information.

Table 6: Typology of practices from the investor's perspective

	Analyses and interpretations
<p><u>A1: Voluntary (0.59) and active (0.64), dynamic (0.77): the “virtuous”</u></p> <p>Large firms with majority scattered shareholding</p>	<p>Thanks to the relevance and reliability of the reporting information, the financial communication is of high quality, either in terms of content or vectors.</p> <p>There is a willingness to communicate and/or the investor is influential; the external orientation of the internal reporting system enables the investor to have the expected information at his disposal: numerous vectors of disclosure are used, and voluntary extent is supported by information coming from internal reporting whose information is reliable and relevant. The deadlines are voluntarily established. We can expect the information quality to positively influence the decision-making process.</p>
<p><u>B1: Passive (0.47) and conformist (0.45), dynamic (0.75): the “secretive”</u></p> <p>Medium-sized firms with majority scattered shareholding</p>	<p>The reporting information is relevant and reliable, yet the unwillingness to disclose management control information and the restrictions on exchange periods illustrate the low quality of the financial communication.</p> <p>There is a culture of secrecy; willingness to communicate is obviously nonexistent. The information exists internally but is not disclosed. The determinants for non-disclosure are still to be found out.</p>
<p><u>A2: Voluntary (0.54) and active (0.60), static (0.60): The “illusionists”</u></p> <p>Medium-sized firms with minority scattered shareholding</p>	<p>The reporting information is less relevant, yet this does not discourage the firms from willingly communicating, as shown by the use of many private and public vectors of disclosure, even though the extent is of lower quality. The results in terms of deadlines and periodicity are generally good.</p> <p>The firms are ready to communicate, or wish to be conformist, but danger lies in the potential for incorrect interpretation or incomplete analyses, since the internal reporting lacks relevance. Communication is constrained by the internal system, probably by internal management (unwillingness to set up strategic controls for the whole company).</p>
<p><u>B2: Conformist (0.42) and passives (0.42), static (0.58): The “indifferents”</u></p> <p>Small firms with minority scattered shareholding</p>	<p>Public disclosure of mandatory information is prevalent and communication is perceived as a constraint: the results are bad in terms of deadlines, poor voluntary information, few private exchanges, and poor content, frequency and means of exchange.</p> <p>It is likely that the prevalence of concentrated shareholding does not urge external communication or influence the reporting system to that end.</p>

Figure 1: Typology of disclosure and reporting practices



5. Conclusion

This study is a first step towards opening the “black box” of the construction of financial disclosure. It shows the complexity of interactions between internal reporting systems and financial communication practices.

By measuring the quality of internal reporting and communication practices, we expected to uncover a link between them: a firm disclosing information of quality should necessarily issue it from an internal reporting system of quality. In the end, however, this is true for only some firms and we highlighted four different cases. To be in the situation whereby quality disclosure and quality internal reporting systems are both present, it is necessary for managers to intend to produce a disclosure of quality, urging them to improve their internal reporting systems. Managers may find external disclosure too costly, however, even when the information is in place internally. The explanatory factors for such an attitude were not revealed by the present study. For the third category of firms, the disclosure seems to be of a high quality, when in fact this is the case only for the large vectors used, either public or private; the content remains very poor, due to a poor level of internal reporting. The fourth group of firms seems to be indifferent to producing a disclosure of quality, and therefore do not feel a need to improve the quality of their internal reporting. This study increases our understanding of the way firms manage to deal with disclosure of information to investors, with regards to the internal information at their disposal.

This research makes a contribution to the academic fields of finance and management control. First, it allows us to confront two pieces of information that are generally dealt with in a dichotomous manner by researchers – internal information on one hand, and disclosed information on another hand; second, the method used comes from the field of finance, but it

is used here to grade an internal management tool, which has never been done before. This method could be reproduced by control researchers for other purposes.

This research contributes to the visions of practitioners as well. It shows that the information has to exist within the internal reporting system if the manager wants to disclose it. This urges the financial controller to pay close attention to the needs of the financial markets, and be able to answer the specific requirements. On the other hand, large firms, generally with a majority of floating shareholders, are urged to improve their financial communication in order for their investors to understand them better and not be unpleasantly surprised by the emergence of previously undisclosed information.

These findings raise questions for future researchers. First of all, we only establish links between variables, and the present work did not allow for any investigation relating to causality. A reporting of good quality seems to facilitate good communication practices, but we could say that good communication practices develop the quality of reporting. Secondly, we were not able to confirm the reactions of investors according to the quality of the combined reporting and disclosure. This could be done by testing the investors' expected reactions with relation to each sub-group. When the information is of quality, the market is expected to react positively, thus proving that the information is understood and integrated. As a third point, the methodology did not allow for a deep exploration of how the voluntary information, such as non-financial indicators, is used in private exchanges between investors and managers. Finally, it would be interesting to bring to light the determinants of the non-disclosure of quality internal information.

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APPENDIX A: Data on the sample

Table A1: Distribution of the sample by index

Classification by index	% in relation to the total number of SBF 250 firms	Number of firms of the sample to contact	Number of firms that replied (useful sample)	% in relation to the total number of the sample	Reply rate
CAC 40 index	15.6%	23 firms	11 firms	20%	47.8%
CAC Next 20 index	7.3%	11 firms	3 firms	5.5%	27.3%
MID100 index	40.0%	60 firms	24 firms	43.6%	40%
SMA 90 index	37.1%	56 firms	17 firms	30.9%	30.4%
Total	100.0%	150 firms	55 firms	100%	36.7%

Table A2: Distribution of the useful sample by branch of industry

Classification by branch of industry	Number of firms in the useful sample	% in relation to the total number in the useful sample	% of the total number of the sample to contact	% in relation to the total number of the population
Energy	3 firms	5.5%	2.0%	1.0%
Chemicals	2 firms	3.6%	2.0%	2.6%
Construction and building materials	6 firms	10.9%	6.0%	5.3%
Wood, paper, Steel	0 firm	0%	2.0%	1.8%
Industrial equipment	6 firms	10.9%	8.0%	6.4%
Engineering	1 firm	1.8%	1.3%	4.6%
Aeronautics, automotive	4 firms	7.3%	6.7%	4.8%
Textile, clothing, leather	0 firm	0%	2.0%	4.2%
Mass market and small Equipment	1 firm	1.8%	3.3%	6.2%
Food-processing	3 firms	5.5%	6.7%	7.9%
Healthcare and pharmaceuticals	2 firms	3.6%	11.3%	7.7%
Retail and business	4 firms	7.3%	7.3%	6.8%
Hotel, catering, leisure	3 firms	5.5%	3.3%	3.5%
Publishing, press, communications	2 firms	3.6%	6.0%	5.9%
Business and individuals services	6 firms	10.9%	11.3%	6.4%
Transport	2 firms	3.6%	3.3%	3.7%
IT and telecommunications	10 firms	18.2%	16.7%	20.7%

Table A3: List of firms in the useful sample

Name	Index	Branch of industry
Air Liquide	CAC 40	Chemicals
Bouygues	CAC 40	Construction and building materials
Danone	CAC 40	Food processing
Eads	CAC 40	Aeronautics, automotive
Essilor Intl.	CAC 40	Healthcare, pharmaceuticals
Peugeot	CAC 40	Aeronautics, automotive
Renault	CAC 40	Aeronautics, automotive
Saint Gobain	CAC 40	Construction and building materials
Schneider Electric	CAC 40	Industrial equipment
Stmicroelectronics	CAC 40	IT and telecommunications
Vivendi Universal	CAC 40	Publishing, press and communications
Business Objects	CAC next 20	IT and telecommunications
Sodexo Alliance	CAC next 20	Business and people services
Technip	CAC next 20	Energy
Alstom	Mid 100	Industrial equipment
Altran Techn.	Mid 100	IT and telecommunications
Areva Ci	Mid 100	Business and individuals services
Bonduelle	Mid 100	Food processing
Ciments Francais	Mid 100	Construction and building materials
Club Mediterranee	Mid 100	Hotel, catering, leisure
Eurazeo	Mid 100	Industrial equipment
Eurotunnel Unit	Mid 100	Transport
Faurecia	Mid 100	Aeronautics, automotive
Fimalac	Mid 100	Business and people services
Galleries Lafayette	Mid 100	Retail, business
Remy Cointreau	Mid 100	Food processing
Sopra Group	Mid 100	IT and telecommunications
Alain Afflelou	Mid 100	Retail, business
Alpes	Mid 100	Hotel, catering, leisure
Bolloré Invest.	Mid 100	Transport
Bull	Mid 100	IT and telecommunications
Esso	Mid 100	Energy
GI Trade	Mid 100	IT and telecommunications
Groupe Bourbon	Mid 100	Energy
Kaufman And Broad	Mid 100	Construction and building materials
Manitou Bf	Mid 100	Industrial equipment
Manutan Intl.	Mid 100	Business and people services
Toupergel-Agrigel	Mid 100	Retail, business
Apem	Sma 90	Industrial equipment

Name	Index	Branch of industry
Buffalo Grill	Sma 90	Hotel, catering, leisure
Cegid S.A.	Sma 90	IT and telecommunications
Delachaux	Sma 90	Engineering
Exel Industries A	Sma 90	Industrial equipment
Groupe Guillin	Sma 90	Chemicals
High Co.	Sma 90	Publishing, press and communications
Mr Bricolage	Sma 90	Retail, business
Neurones	Sma 90	IT and telecommunications
Prosodie	Sma 90	Business and people services
Radiall	Sma 90	IT and telecommunications
Sii	Sma 90	IT and telecommunications
Skis Rossignol	Sma 90	Mass market small equipment
Stallergenes	Sma 90	Healthcare, pharmaceuticals
Synergie	Sma 90	Business and people services
Thermador Groupe	Sma 90	Construction and building materials
Vm Materiaux	Sma 90	Construction and building materials

APPENDIX B: List of themes addressed in the questionnaires

Characteristics of the internal reporting systems

- The relationship management control/strategy in terms of planning and budget construction, indicators selection and strategic control.
- The general types of information included within the reporting.
- The local/central relationship, in terms of indicators used on both sides in order to communicate strategically and operationally between both levels.
- Differences between general accounting and management control accounting.
- Differences between internal information and the information intended to be disclosed, or external information.
- Methods and internal control procedures
- Quality of forecasts.
- Periodicity of the information reporting from base to summit.

Regarding the public and private disclosure practices

- The means used to communicate.
- The nature of the disclosed information.
- Explanation of the results.
- Completeness and clarity of the disclosed information.

APPENDIX C: Extracts of some of the questions addressed in the questionnaires

Part 1: Questionnaire regarding the quality of internal reporting

Q1.2 Internal reporting information system: links between Strategy and Management Control departments

1.2.1 Strategy and Management Control departments work together to formulate strategic plans and budgets.

True ☐ False ☐

1.2.2 When formulating strategic plans, each business unit within the firm elaborates its own strategy with input from all of the actors in the business unit.

True ☐ False ☐

1.2.3 In budget meetings, the business units' point of view prevails over the general management's.

True ☐ False ☐

1.2.4 Long-term objectives are not converted into medium and short term objectives.

True ☐ False ☐

1.2.5 The first year of the strategic plan is budget year.

True ☐ False ☐

1.2.6 No general objectives are given to any business unit during the budget-formulation process; each business unit gives its own forecasts independently of the group's objectives.

True ☐ False ☐

1.2.7 Qualitative and quantitative indicators are in place within the group reports, and this allows for management of the strategy adopted by the group.

True ☐ False ☐

1.2.8 The indicators existing in the reports are chosen by the general management.

True ☐ False ☐

1.2.9 Strategic control is formalized: each objective is managed with an indicator, and this indicator is regularly checked.

True ☐ False ☐

1.2.10 Each report is followed by meetings wherein the results are discussed.

True ☐ False ☐

Part 2: Questionnaire regarding the quality of communication practices

Q2 Public voluntary disclosure to shareholders.

Q2.1 Public disclosure vectors.

Among the following disclosure vectors, please tick the ones you use to communicate with your shareholders

- | | |
|--|--------------------------|
| 2.1.1.1 Compulsory legal announcements | <input type="checkbox"/> |
| 2.1.1.2 General shareholders' assembly | <input type="checkbox"/> |
| 2.1.1.3 Press communications | <input type="checkbox"/> |
| 2.1.1.4 Internet | <input type="checkbox"/> |
| 2.1.1.5 Financial advertising | <input type="checkbox"/> |
| 2.1.1.6 Other | <input type="checkbox"/> |

Please specify:

Q2.2 Items listed in quaterly or bi-annual disclosures

Among the following items, please tick the ones you disclose via any of the previous vectors

- | | |
|---|--------------------------|
| 2.2.1 General information on methods and procedures | |
| 2.1.1.1 Mention of the referentials used | <input type="checkbox"/> |
| 2.1.1.2 Mention of the principles and procedures used | <input type="checkbox"/> |
| 2.1.1. 3 Explanations linked to the consolidation perimeter | <input type="checkbox"/> |
| 2.2.2 Financial and accounting information disclosed | |
| 2.2.2.1 Profit and loss account | <input type="checkbox"/> |
| 2.2.2.2 Details of operating expenses | <input type="checkbox"/> |
| 2.2.2.3 Details of R&D expenses | <input type="checkbox"/> |
| 2.2.2.4 Cash position | <input type="checkbox"/> |
| 2.2.2.5 Cash flows | <input type="checkbox"/> |
| 2.2.2.6 Balance sheet or balance sheet elements (for example investments) | <input type="checkbox"/> |

APPENDIX D: Results of the cluster analysis

Rescaled Distance Cluster Combine

