L'UTILISATION DE L'INFORMATION SECTORIELLE PAR LES ANALYSTES FINANCIERS : UNE ETUDE DES ETI EUROPEENNES COTEES

THE USE OF SEGMENT INFORMATION BY FINANCIAL ANALYSTS: A STUDY ON EUROPEAN INTERMEDIATE SIZE COMPANIES

Résumé : Notre étude s'intéresse à l'utilisation de l'information sectorielle par les analystes financiers des ETI cotées européennes au sein de leurs rapports de recommandation. Elle se fonde sur l'analyse de 339 rapports de recommandation d'analystes financiers concernant 146 ETI européennes. Nos résultats montrent que si les analystes font largement référence à l'information sectorielle et réalisent une prévision sectorielle du chiffre d'affaires pour plus de la moitié d'entre eux, ils sont très peu à utiliser l'information sectorielle dans leur modèle de valorisation. L'utilisation de l'information sectorielle par les analystes financiers est plus importante : pour les firmes de taille plus grande ; lorsque l'information sectorielle publiée est davantage discriminée ; et enfin, pour les analystes britanniques. Nos résultats interrogent sur l'utilité de l'information sectorielle dans le cas de firmes de taille intermédiaire.

Mots clés : IFRS 8, Information Sectorielle, Analystes Financiers, Rapports de Recommandation, ETI

Abstract : We address whether financial analysts dealing with European listed intermediate size companies reporting under IFRS 8 refer to segment information and use segmental models in their recommendation reports. The study is based on an original hand collected data-base obtained from a sample of 339 analysts' recommendation reports for 146 firms. Our analysis reveals that (1) a majority of analysts refer to segment information in the reports and around half of them use it to forecast revenues; (2) but only a few of them use segment information in their valuation model. It also reveals that the use of segment information by financial analysts is: (3) greater for larger firms than for smaller ones; (4) greater when the segment information is discriminated; and (5) greater for UK analysts. Our results question the usefulness of segment information disclosures for smaller firms.

Key words: IFRS 8, Segment Information, Financial Analysts, Recommendation Report, European Intermediate-size Companies.

1 Introduction

The objective of this study is to determine how financial analysts refer to segment information and use segmental data and models in their recommendation reports. Financial analysts are frequently considered as main stakeholders of the financial information reported by companies as users but also as watchdogs (Yu, 2008). Thus, it is especially interesting to study how financial analysts deal with the financial information through their reports. Financial analysts are particularly concerned by the consistency between internal or managerial information and external or financial information. In this way, segment information is a particularly good field of investigation to measure or to observe the financial information effectiveness and usefulness for the financial analysts. Recent adoption of IFRS 8 opens the way of convergence but leads also to several questions about segment reporting such as the impact of non compulsory geographic disclosure or the reality of managerial reporting in financial information. IFR8 was endorsed by the European Union under the condition that a Post-implementation Review (PIR) would be carried out within the 3 years of its application. Our research aims to provide new insights into the Post-implementation Review of IFRS 8 as different papers extol the participation of academics in the development of accounting standards and insist on the fact that research can provide insights into accounting standard-setter issues (Abela & Mora, 2012; Barth, 2000; Larson, Herz, & Kenny, 2011).

We address two research questions. The first research question deals with the reference to segment information within the recommendation reports, especially for analysis purposes: Do financial analysts of European intermediate size companies refer to segment information? (Q1) Our study also identifies the determinants of the use of segment information by financial analysts and addresses the second research question: What are the determinants of the use of segment information by the financial analysts of European intermediate size companies? (Q2) The main specific firm characteristics studied in this research are the size of the company (total assets, number of employees), the discrimination of the segmentation (number of segments, heaviest segment) and the country of the analyst.

Our empirical study is based on a sample of 146 French, German, and UK listed intermediate size firms for which we have analyzed 339 financial analysts' recommendation reports published in 2009 and 2010. It reveals that (1) financial analysts largely refer to segment information in their recommendation reports showing that they remain very sensitive to both LOB and geographic segment information reported by the companies. (2) Even if segmental models are not frequently produced in their reports, financial analysts mostly use segmental forecasting models and segmental valuation models based on LOB segmentation. (3) The use of segment information by financial analysts is greater for larger firms than for smaller firms. (4) The use of segment information by financial analysts is greater when segment information is well discriminated. (5) We observe a greater use of segment information by English financial analysts. Our results question the usefulness of segment information disclosures for smaller firms.

This research contributes to supplement the Post-implementation Review of IFRS 8 and is a contribution to its literature (IASB, 2013b). This research also contributes to a better understanding of the practices of the financial analysts covering intermediate size companies. It adds a contribution to previous studies based on a recommendation reports content analysis.

The paper first reviews the academic literature and presents the research questions (2). Next section explains our research design (3). Then, the results of our empirical study are presented and discussed (4). The final section concludes and highlights the needs for supplementary studies.

2 Literature and Research Questions

2.1 Literature

Research suggests that small firms present some differences compared to larger ones. Differences appear on financial markets. First, the "size effect" is enhanced by authors like Jacobs & Levy (1989) in their synthesis on the "size effect" (common stock returns are inversely related to a firm's size) literature. They show us that the size effect reflects transaction costs, risk measurement and risk premiums issues. The second difference for small firms deals with the level of disclosure: they are known for disclosing less qualitative information. Previous literature on the subject shows that, due to the composition of the board of directors for example, the information content of earnings is lower for small firms and loss making firms (Hayn, 1995; Petra, 2007). Thus, small firms have higher volatility and make analysts less confident. Therefore, financial analysts prefer to follow large firms with lower volatility (M. H. Lang & Lundholm, 1996; O'Brien & Bhushan, 1990) and their ratings will be impacted by firm size (M. Lang & Lundholm, 1993). Several mechanisms, such as investors relations programs (Bushee & Miller, 2012) or non financial information disclosure (Orens & Lybaert, 2007, 2010), could improve disclosure quality and consequently analysts following. But analysts' following remains weak for smallest firms.

Among the data considered useful to financial analysts, segment information is most often mentioned (AIMR, 1993; Bouwman, Frishkoff, & Frishkoff, 1995; CFA-Institute, 2007; Chang, Most, & Brain, 1983; Day, 1986; Saghroun & Eglem, 2008). Today, Segment information disclosed by European listed firms must comply with IFRS 8. The IFRS 8 standard, which came into effect on 1 January 2009, requires companies to adopt a managerial approach in disclosing segment data. This managerial approach means that they have to provide information the way it is used by the chief operating decision maker (CODM). The managerial approach is generally deemed to be more suitable because it is based on the information as it is "seen" and "used" by managers. Most financial analysts appreciate having information that is identical to that used by chief executives, but they fear that companies will change their segmentation more often, making financial statements less comparable (CFA-Institute, 2007; Papa & Ciesielski, 2009). Apart from choosing the managerial approach, which was the most important issue in the debate on moving from IAS 14 to IFRS 8, other elements were also modified in the new standard. For example, the amount of compulsory information

to be reported was substantially reduced, with several items only being reported if they are actually provided to the CODM.

Segment information research is mainly focused on segment disclosure practices (Gray, 1978; Gray & Radebaugh, 1984) and on segmental reporting determinants such as country of domicile, firm size or exchange listing (Herrmann & Thomas, 1996) or such as competitive structure of the industry (Tsakumis, Doupnik, & Seese, 2006). The enforcement of the standards (transition from SFAS 14 to SFAS 131, from IAS 14 to IAS 14 Revisited…) and the convergence effort between US GAAP and IFRS question accounting researchers about the real improvement of segmental reporting worldwide. Mainly, segment information disclosure has improved for several years (greater number of Lines of Business – LOB; better geographic information; better transparency) thanks to US GAAP enforcement and to IFRS enforcement. Transition from SFAS 14 to SFAS 131 led to an improvement of Lines of Business (LOB) and geographic segments disclosures (Doupnik & Seese, 2001). Street & al. (2000), using descriptive statistics, showed that the adoption of SFAS 131 led to a greater number of LOB segments reported, to more meaningful and transparent geographic groupings (Street, Nichols, & Gray, 2000). Adoption of SFAS 131 resulted in more information disaggregation and induced firms to reveal information about their diversification strategies (Berger & Hann, 2003). According to several authors, the adoption of the IAS 14R has improved segment information under IAS (greater number of LOB segments reported, more meaningful and transparent geographic groupings, more items of information about each LOB and/or geographic segment) but the compliance with IAS 14R was still imperfect (Street & Nichols, 2002) ; (Prather-Kinsey & Meek, 2004).

The differences between SFAS 131 and IAS 14 and more recently, the convergence between SFAS 131 and IFRS 8 raise some fundamental issues. The management approach of the segment information reported under SFAS 131 and now IFRS 8 seems to be better even if managers persist in aggregating segments under some conditions (Nichols & Street, 2007; Paul & Largay III, 2005). Where IAS 14 compelled firms to report geographic segment disclosures, SFAS 131 and IFRS 8 are much more flexible. Despite the efforts of accounting researchers and regulators to encourage geographic segment reporting, such information is still poorly reported. Geographic segment reporting of quality improves forecasts (Behn, Nichols, & Street, 2002; Herrmann, 1996). One of the issues at stake remains the consistency between the segment information "audited" (reported in the notes of the financial statements) and other sources of segment information (management reports and presentations…) (Schipper, 2007).

Taken as a whole the accuracy of analysts' forecasts is linked to the level of annual report disclosure and the degree of enforcement of accounting standards (Hope, 2003). Concerning segment disclosures, it has been known for a long time that financial analysts are looking for qualitative and quantitative segment information reported by firms (Backer, 1971). Most research focuses on the improvement of the quantitative output of financial analysts: the forecasts. The enforcement of the standards concerning segment reporting approach and LOB segment reporting is usually linked to an improvement of the financial forecasts. Baldwin demonstrated that the implementation of the SEC's line-of-business disclosure requirements that became effective in 1971 generated a decrease in analysts' forecasts errors (Baldwin, 1984). In this study Baldwin analyzed the analysts' forecasts extracted from Value Line for 188 firms and measured

the errors between estimate and actual performance. Analysts' forecasts accuracy was also positively impacted by the adoption of SFAS 14. Lobo & Kwon (1998), analyzing a sample of 76 Pre-SFAS14 and Post-SFAS 14, find an increase in the analysts' forecasts accuracy (Lobo & Kwon, 1998). As SFAS 131 is the first standard to specifically address financial analysts' complaints (Botosan & Stanford, 2005), its adoption is a point that is worth thinking about. Consequently similar methodology was adopted to assess the impact of the adoption of SFAS 131 on forecasts accuracy of 25 early adopters firms (Alliouallа & Laurin, 2002).
A Pre-SFAS 131 and Post-SFAS 131 research (21,698 firm-years observations) also demonstrates a positive impact of SFAS 131 on the forward earnings response coefficient (FERC - association between current-year returns and next-year earnings) (Ettredge, Soo Young, Smith, & Zarowin, 2005). Pre / Post SFAS 131 research was also conducted over 177 firms in order to estimate its impact on foreign earnings pricing (Hope, Kang, Thomas, & Vasvari, 2008). The authors "find strong evidence that the introduction of the standard is positively associated with the pricing of foreign earnings". Geographic segment disclosures also tend to impact market valuation (Thomas, 2000) or to improve financial forecasts especially if such disclosures are qualitative (Seese & Doupnik, 2003).
However the relation between segment information and financial analysts' output is still discussed. Some authors demonstrate that nondisclosure of geographic earnings has no effect on the accuracy of the analysts' forecasts (Hope, Thomas, & Winterbotham, 2006). Therefore the relevance of segment information for financial analysts is not fully proved. Most of these studies are mainly built upon regressions based on the analysis of the consensus edited by data bases such as IBES.

As a large amount of theoretical literature does not explain fully the practical usage of financial information by analyst, some authors adopt a qualitative approach in order to identify the behavior of financial analysts and their real need for financial information. During interviews, case situations or questionnaire surveys, analysts expressed their need for annual reports (Vergoossen, 1993), their need for accounting standardization (Saghroun, 2003), their quest for segment information when they analyze a firm with different lines of business (Bouwman et al., 1995; Day, 1986) and their sensitivity to managerial segment information (Maines, McDaniel, & Harris, 1997). Although financial content of the annual report prevails in their reports (Nielsen, 2008), financial analysts use annual reports but also pay attention to other sources of information such as directors' reports, industry statistics, press releases in order to identify key indicators such as strategic ones (Dempsey & Gatti, 1997).

Finance and accounting researchers have begun to work on recommendation reports written by financial analysts in order to understand how "the machine runs inside" and what the models used by financial analysts are. The study of 103 recommendation reports demonstrates how analysts use target prices as justifications for their stock recommendations (Bradshaw, 2002). The content analysis of the reports can also bring valuable information about valuation practices (Demirakos, Strong, & Walker, 2004) and analysts' needs for financial information, such as for non financial information (Previts, Bricker, Robinson, & Young, 1994). Nielsen (2008) focuses on 111 analysts reports concerning only one health care company in order to understand how health care companies communicate their business models.

The content analysis of financial analysts' reports adds various contributions: it provides valuable indications to companies about the needs of financial analysts but also to standard setters about the usefulness of the accounting standards.
Through analyzing analysts' reports, researchers try to assess the usefulness of financial statements for the financial analysts. Rogers & Grant (1997) assess the relevance of information provided in the annual report by investigating a sample of 187 sell-side analysts' reports. They found that "*the information provided in the financial statements constitutes a relatively small portion of the financial analysts' reports (only one-quarter of the information in the average analyst report is found in these basic financial statements) while the MD&A section provides the largest proportion of annual report information cited by analysts*". More recently, Flöstrand (2006), conducted a content analysis of 250 analysts' reports and examined the use of indicators of intellectual capital (IC) by sell-side analysts in order to conclude on the perceived usefulness of different categories of indicators.

2.2 Research questions and hypothesis

We decided to analyze how financial analysts refer to voluntary and compulsory segment information through their recommendation reports. To the best of our knowledge, few studies deal with the contents of financial analysts' reports regarding segment reporting and voluntary disclosures. Our research focuses principally on the study of these, based on European intermediate size companies.
The first objective of our research is to determine whether financial analysts' reports dealing with European intermediate size companies refer to segment information, which can use Lines Of Business segmentation (called LOB segmentation) or geographic segmentation.
We address the first following research question

(Q1) Do financial analysts of European intermediate size companies refer to segment information?

We assume that if the report does indeed mention segment information, this means that the analyst who wrote the report is inclined to use that information. Moreover, if the disclosed information is different from that used in the notes to the financial statements, this means either that the financial analyst has reprocessed the information or that the financial analyst has had access to other information sources.
Based on the literature on financial analysts and their need for financial information, we identified two hypotheses:

H1: Financial analysts refer to segment information (LOB or Geographic) in their recommendation reports in order to analyze the company.

H2: Financial analysts present segmental (LOB or Geographic) forecasts in their recommendation reports in order to value the company.

The second objective is to identify the determinants of the use of segment information by the financial analysts of European intermediate size companies.
The second research question we ask is as follows:

(Q2) What are the determinants of the use of segment information by the financial analysts of European intermediate size companies?

Literature about disclosure has established for a long time that larger firms disclose more information and more qualitative information than smaller firms.
To the best of our knowledge, no study deals with the relationship between the size of the firm and the use of specific financial information by the financial analysts in their recommendation reports. Even if we know that financial analysts prefer to cover larger firms we don't know if there is a size effect about their use of financial information. Based on the disclosure studies and the analysts' following, we address the subsequent hypothesis:

H3: Financial analysts' use of segment information is greater for larger firms than for smaller firms.

Numerous studies from researchers as well as from standard setters emphasize the importance of the quality of the segmentation that could be obtained through an appropriate number of segments (aggregation vs. disaggregation) and a presentation of both LOB and geographic accurate information. Herrmann & Thomas (2000) show that forecast precision should increase with greater disaggregation of earnings and greater accuracy in measuring the segment weights (Herrmann & Thomas, 2000). Berger & Hann (2007) emphasize the fact that "*Segment data are of particular importance for revealing agency concerns because they provide information about a company's diversification strategy and its transfers of resources across divisions…Managers may therefore use their discretion opportunistically to conceal negative segment information."* Accordingly, our next hypothesis predicts that financial analysts will use segment information when correctly discriminated.

H4: Financial analysts' use of segment information is greater for firms disclosing discriminated segment data.

Many studies about segment information show that the country of the company impacts the quality of such information. Likewise, financial analysis becomes professionalized (creation of the CFA diploma for example) but with some differences among countries (Sauviat, 2003). Therefore, our next hypothesis is as follows:

H5: The country of the analyst impacts the level of its use of segment information

3 Research Design

3.1 Sample

In setting up our sample we have used the official French definition of an intermediate-size company (*entreprise de taille intermédiaire*) as specified by the 2008 French

finance law[1]: a company with between 250 and 4 999 employees, turnover not exceeding €1.5 billion and a balance sheet total not exceeding €2 billion.
As data had to be collected manually, we decided to limit the number of firms to 200 at first. We therefore decided to select listed companies from three European countries: the UK, France and Germany, first because their stock exchanges are among the largest in Europe, second, because the National Setters of those 3 countries are very influent in the governance of EFRAG and, third, to reflect the geographic diversity of the research team. Our initial selection of British, French and Germann intermediate-size companies was based on 2010 data from the Thomson ONE Banker database. Table 1 summarizes the procedure for setting up the sample. We began our selection by choosing companies on the basis of turnover, we then applied two size criteria: number of employees and total assets. We ruled out companies in the finance sector and companies for which certain figures were missing (total assets, number of employees).

Table 1 – Sample design

French, German and British non financial listed intermediate size companies (net sales < 1.5 billion Euros and 250 < number of employees < 4,999 and total assets > 2 billion Euros and non financial entities)		777
Manually eliminated companies (as described in the paper)	-545	232
Companies with one or two missing annual reports	-41	191
Single segment companies	-15	176

Our initial sample was made up of 777 companies. In order to meet our starting objective of 200 companies, we manually reduced the sample using the following criteria:

- ruling out companies for which we could not get access to at least five studies by financial analysts working at brokerage firms for the 2007-2011 period in the Thomson One Banker database;
- randomly choosing one company out of three, making sure that the proportion of countries and other criteria (number of employees, turnover and balance sheet total) was virtually identical to the original selection.

We thus obtained a sample made up of 232 intermediate-size European listed companies and we collected a database of 1199 financial analyses. Finally, we eliminated companies for which we did not have two annual reports, and 15 mono-segment companies. The latter do not publish specific segment information either because they only have one line of business or because they only operate in one geographic area. Taking them into account would have biased our analysis of compliance with IFRS 8. Thus, the final sample before analyzing financial analysts' reports was made up of 176 firms.

Then, the study has been conducted based on financial analysts' reports written in English or in French extracted from the Thomson Database (Thomson One Banker) regarding the 176 European firms selected above.

[1] French law n° 2008-776 on the modernisation of the economy, promulgated on 4 August 2008.

The research focuses on financial analysts' reports published between 2009 and 2011. The first selection criterion was thus the release date of the report: between January the 1st. 2009 and December the 31st. 2011. Also, in spite of the high number of reports "extracted" by Thomson, we have not retained all of them for this study. Moreover, we have established some complementary criteria. The second selection criterion is the number of pages of the report. We wanted to study the reports with the highest number of pages, the minimum number being five. Generally, reports with very few pages are mostly "informative" and "reactive" reports: they exclusively deal with the latest information and only deliver an update on the forecasts. Because sometimes financial analysts publish different reports each year for the same company, we decided to keep only one report (the one with the maximum number of pages) from each financial analyst for each year and for each company. In addition to this criterion, we selected reports dealing with actual data results published by the firms from 2009 and 2010. The last selection criterion concerns the content of the report. The reports that give an analysis and provisional information and figures have been retained (the ones with at least earnings forecasts). The reports that only give an update have been excluded. Finally, we have retained the reports which come from the most important financial companies. Those reports given by Thomson show that only a company profile have been excluded, as well.

Applying those selection criterions led to a final sample of 146 firms and 339 financial analysts' reports presented in table 2 below.

Table 2 – Sample design

		Firms		**Financial Analysts' Reports**	
		N	***%***	***N***	***%***
Country	Germany (Ger.)	45	30.82%	115	33.92%
	France (Fr.)	41	28.08%	61	17.99%
	United Kingdom (UK)	60	41.10%	163	48.08%
Total		146	100.00%	339	100.00%

The final sample consists of 339 financial analysts' reports regarding 146 European intermediate size companies. Demirakos & Al. analyzed 104 analysts' reports of 26 UK listed companies from various industries (Demirakos et al., 2004).

3.2 Measure of the use of segment information by financial analysts

Data were hand collected within the 339 analysts' reports. In order to assess the use of segment information by financial analysts, we collected different data concerning the reference to both LOB and geographic segment information but also the presentation of forecast models based on segment information. Table 3 shows the various data collected within the analysts' reports for this study.

- Reference to segment information

Several variables allow determining whether the reports refer to segment information or not. It is also interesting to describe the segmentation type that has been chosen (LOB or GEO).

The observed indicators are the following:
- Reference to segment information for analysis purposes
- Financial ratios: do financial analysts refer to segmental financial ratios?

- Segmental Forecasts and Valuations

Financial analysts' reports are often aimed at adjusting the set objectives performances of the group in consideration. We have then retained in our sample the reports showing financial forecasts. We wanted to determine whether the companies' forecasts and valuation given by the financial analysts were segmental (using LOB segmentation or geographic segmentation).
If so, this segmentation and the one used in the segment information note to the financial statements have been processed.

The observed indicators are the following:
- Financial ratios: do financial analysts refer to segmental financial ratios?
- Revenue forecasts: are the group revenues forecasts carried out in the segmental way?
- Earnings forecasts: in this case, the "earnings" concept is broaden to the intermediate earnings (EBITDA, EBIT)
- Income forecasts
- Group valuation: is the group valuation carried out in the segmental way (using LOB segmentation or geographic segmentation)?

Table 3 – Measure of segment information's use of financial analysts in their recommendations' reports

Data	Type of segmentation	Value
Reference to segment information in the analysis part of the analyst's report	LOB segmentation	0 for No 1 for Yes
	Geographic segmentation	0 for No 1 for Yes
Reference to segment financial ratios in the analysis part of the analyst's report	LOB segmentation	0 for No 1 for Yes
	Geographic segmentation	0 for No 1 for Yes
Segmental revenue forecast	LOB segmentation	0 for No 1 for Yes
	Geographic segmentation	0 for No 1 for Yes
Segmental EBITDA forecast	LOB segmentation	0 for No 1 for Yes
	Geographic segmentation	0 for No 1 for Yes
Segmental EBIT forecast	LOB segmentation	0 for No 1 for Yes
	Geographic segmentation	0 for No 1 for Yes
Segmental income forecast	LOB segmentation	0 for No 1 for Yes
	Geographic segmentation	0 for No 1 for Yes
Segmental valuation	LOB segmentation	0 for No 1 for Yes
	Geographic segmentation	0 for No 1 for Yes

The dependent variable in this study is the level of segment information's use of financial analysts in their recommendations' reports. We develop an index measuring this level based on the sum of the different indicators shown in table 3.

3.3 Determinants of the use of segment information

Specific firm characteristics are used as determinants of the use of segment information by financial analysts.
We focus on three main characteristics that could impact this: firm size (number of employees, total assets), segmentation discrimination (number of segments, weight of the principal segment) and country of the analyst.
In order to measure firm size, we tested the impact of sales but we found co-linearity with assets and no added information. We also tested the logarithms of assets and employees and obtained the same results.
In our sample the nationality of the analyst is the same as the country of domicile of the company analyzed. We assume that because of the smaller size of the companies few analysts follow them and it could be that, Thomson favors the analysts of the country of domicile in those companies.
Information regarding specific firm characteristics was hand collected in the 2009 and 2010 annual reports of the 146 firms of the sample. Table 4 shows definitions of all specific firm characteristics.

Table 4 – Definition of specific firm characteristics (independent variables)

Independent Variable	***Operationalization***
FIRM SIZE	
Number of employees (employees)	Total number of employees (2010)
Total assets (assets)	Total assets (2010)
SEGMENTATION'S DISCRIMINATION	
Number of LOB Segments (LOB Seg)	Number of LOB Segments disclosed by the company in the financial statements (Annual report's year retained is the last actual year used by the analyst, 2009 or 2010) Non metric variable
Part in the revenues of the heaviest LOB segment (LOB Discrim)	Revenue of the heaviest segment divided by total revenues (Annual report's year retained is the last actual year used by the analyst, 2009 or 2010)
Number of Geographic Segments (GEO Seg)	Number of Geographic Segments disclosed by the company in the financial statements (Annual report's year retained is the last actual year used by the analyst, 2009 or 2010) Non metric variable
Part in the revenues of the heaviest Geographic segment (GEO Discrim)	Revenue of the heaviest segment divided by total revenues (Annual report's year retained is the last actual year used by the analyst, 2009 or 2010)
COUNTRY	
Country of the analyst (Country)	Country indicated in the address references on the report In our sample, the country of the analyst is the same as the country of the company Non metric variable

3.4 Model Specification

Using the following model, we investigate the relationship between the level of the use of segment information by financial analysts and specific firm characteristics to explain why financial analysts' reports differ in their use of segment information. We applied an ANCOVA model choosing the level of the use of segment information as the dependent variable and the number of employees, total assets, number of segments (LOB and GEO), segment discrimination (LOB and GEO) as independent variables.

4 Results and Comments

4.1 Descriptive statistics

Table 5 shows the descriptive statistics for the different indicators of the use of segment information by financial analysts. The analysis of the table leads us to confirm hypothesis 1 and to invalidate hypothesis 2. Whatever the main segmentation of the firm is, financial analysts widely mention segment information in the analysis part of their recommendation reports: 89% of the reports dealing with firms primarily segmented on LOB refer to LOB segment information and also 89% of the reports dealing with firms primarily segmented on geographic zones refer to geographic segment information. Financial analysts also widely combine the use of both types of segmentation (LOB and Geographic). 51% of the reports refer to LOB segment information while the main segmentation is geographic and 66% of the reports refer to LOB segment information while the main segmentation of the firm is based on the LOB.

Financial analysts less often refer to segment financial ratios, whatever the main segmentation disclosed by the firm is.

Financial analysts mainly use segmental models in order to forecast revenues. 47% of the reports mention LOB segmental revenues forecasts and 15% of the reports mention geographic segmental revenues forecasts. Despite the needs of geographic information required by analysts' associations, we observe a very low percentage of geographic models.

Consistent with Berger & Hann (2003), we observe that financial analysts prefer to forecast segmental EBIT (LOB EBIT: 22% of the reports; Geographic EBIT: 5% of the reports) rather than EBITDA (6% and 1% respectively) or Income (0%). However the use of segmental models remains very low.

Concerning the valuation of the companies, only 4 reports (1% of the sample) show a LOB segmental valuation while 19 reports (6% of the sample) show a geographic segmental valuation. Those 19 reports stem from the analysis of LOB segmented companies. This under stresses the importance of disclosing both LOB and geographic information.

Table 5 – The use of segment Information - Descriptive statistics

		Firm's Segmentation				Total	%
		Geographic Segmentation N=96	%	LOB Segmentation N=243	%		
Reference to LOB segment information in the analysis part of the analyst's report	No	33	34%	27	11%	60	18%
	Yes	63	66%	216	89%	279	82%
Reference to Geographic segment information in the analysis part of the analyst's report	No	11	11%	120	49%	131	39%
	Yes	85	89%	123	51%	208	61%
Reference to LOB segment financial ratios in the analysis part of the analyst's report	No	86	90%	154	63%	240	71%
	Yes	10	10%	89	37%	99	29%
Reference to Geographic segment financial ratios in the analysis part of the analyst's report	No	78	81%	240	99%	318	94%
	Yes	18	19%	3	1%	21	6%
Segmental revenue forecast - LOB	No	72	75%	107	44%	179	53%
	Yes	24	25%	136	56%	160	47%
Segmental revenue forecast - Geographic	No	61	64%	228	94%	289	85%
	Yes	35	36%	15	6%	50	15%
Segmental EBITDA forecast - LOB	No	93	97%	225	93%	318	94%
	Yes	3	3%	18	7%	21	6%
Segmental EBITDA forecast - Geographic	No	94	98%	242	100%	336	99%
	Yes	2	2%	1	0%	3	1%
Segmental EBIT forecast - LOB	No	91	95%	174	72%	265	78%
	Yes	5	5%	69	28%	74	22%
Segmental EBIT forecast - Geographic	No	81	84%	241	99%	322	95%
	Yes	15	16%	2	1%	17	5%
Segmental Income forecast - LOB	No	96	100%	243	100%	339	100%
	Yes		0%		0%		0%
Segmental Income forecast - Geographic	No	96	100%	243	100%	339	100%
	Yes		0%		0%		0%
Segmental Valuation - LOB	No	94	98%	241	99%	335	99%
	Yes	2	2%	2	1%	4	1%
Segmental Valuation - Geographic	No	96	100%	224	92%	320	94%
	Yes	0	0%	19	8%	19	6%
Total		***96***	***100%***	***243***	***100%***	***339***	***100%***

Table 6 shows the descriptive statistics for the score measuring the use of segment information by financial analysts. If the "potential" maximum score is 14, we must assume that the financial analyst used only one type of segmentation in most cases. The low average score of 2.32 reflects essentially the low use of segmental forecast models by financial analysts highlighted above.

Table 6 – The use of Segment Information – Score - Descriptive statistics

Descriptive Statistics – Dependent Variable

	N	Minimum	Maximum	Mean	Std. Deviation
The use of Segment Information -Score (/14)	339	.00	8.00	2.3156	1.57573

Descriptive statistics for the specific firm characteristics are presented in Table 7.
The number of segments reported is frequently used to determine the quality of segment reporting and its comparability. Still, the various studies in this area lack uniformity of methodology. First of all, it is important to distinguish the operating segments defined by the standard from the different categories reported by firms. Companies often publish one or two columns that correspond to reconciling items or to "corporate" data or even to discontinued activities. In our study we only use "pure" operating segments and have therefore discarded any reconciling "columns". On average, companies disclose 2.8 LOB segments and 3.2 geographic segments. The recent study by Crawford et al. (2012) shows a smaller number of segments for small companies (FTSE 250 vs. FTSE 100), regardless of whether the segmentation is LOB or geographic. Our findings

are lower than those obtained by Crawford et al. (2012) for their sample as a whole, unless we compare the number of LOB operating segments for FTSE 250 companies (2.75). For Nichols et al. (2012) the average number of operating segments (regardless of segmentation type) is 4.19. The intermediate-size companies in our sample thus report a smaller number of segments, whether LOB or geographic, than has been observed in studies on larger companies.
On average, the weightiest segment represents 51% of the total revenues. The maximum is 97% for the LOB segmentation sample and 139% for the geographic segmentation sample. Companies disclose total "gross" revenues for each segment and then isolate the inter-segment sales. This explains why the weight of some segments is heavy and sometimes exceeds 100%.

Table 7 – Specific Firm Characteristics - Descriptive statistics

Descriptive Statistics – Independent Variables				
	Minimum	Maximum	Mean	Std. Deviation
Number of Employees (2010)	250.00	4969.00	1508.57	1312.17
Total Assets 2010 (Millions of Euros)	17.25	1682.37	340.22	381.33
Number of LOB Segments (Latest Actual Year in Analyst's Report)	0.00	8.00	2.83	1.65
Maximum LOB Segment Sales Percentage (Latest Actual Year in Analyst's Report)	0.00	0.97	0.51	0.29
Number of GEO Segments (Latest Actual Year in Analyst's Report)	0.00	11.00	3.20	1.83
Maximum GEO Segment Sales Percentage (Latest Actual Year in Analyst's Report)	0.00	1.39	0.51	0.30

The VIF values presented in Table 8 are far below 2 and consequently multicolinearity does not appear to be a serious problem in interpreting the regression part of our study.

Table 8 – Specific firm characteristics – Collinearity Statistics

	Collinearity Statistics	
	Tolerance	VIF
Number of Employees (2010)	.550	1.818
Total Assets 2010 (Millions of Euros)	.550	1.818
Maximum LOB Segment Sales Percentage (Latest Actual Year in Analyst's Report)	.808	1.238
Maximum GEO Segment Sales Percentage (Latest Actual Year in Analyst's Report)	.818	1.223
Number of LOB Segments (Latest Actual Year in Analyst's Report)	.751	1.331
Number of GEO Segments (Latest Actual Year in Analyst's Report)	.917	1.090

4.2 ANCOVA Analysis

The results of the ANCOVA model are presented in table 9 below.
In order to be relevant in our analysis we divide our sample into two groups based on the type of segmentation disclosed by the companies. The first sub sample deals with the recommendation reports analyzing Geographic segmentation companies (GEO), whereas the second sub sample deals with the recommendation reports analyzing LOB segmentation companies (LOB).

The results indicate a significant positive relationship between the number of employees and the use of segment information by financial analysts whatever the type of segmentation primarily disclosed by the company is. We can assume that the number of employees is linked to the dynamism and the expansion of the firm. Surprisingly, total assets are not fully associated with the use of segment information. There is a positive significant relationship between total assets and the use of segment information for the firms disclosing primarily LOB segment information but not for those disclosing primarily geographic segment information. Hypothesis H3 is partially confirmed. The use of segment information by financial analysts is greater for larger firms than for smaller firms if we consider the number of employees as a size indicator.

Unsurprisingly, LOB discrimination is significantly and negatively associated with the use of segment information by financial analysts. If a company has one main segment, there is no need to segment the forecasts and financial analysts can approximate the estimates using only the largest segment's characteristics. Financial analysts reduce the business model of the company to the largest LOB segment. This result also confirms the need for financial analysts to have properly disaggregated LOB segments. For some smaller companies this addresses the whole usefulness of segment information. Those results are not confirmed for the geographic discrimination and we can assume that, in their models, financial analysts are more confident with LOB approaches than geographic ones. This is in line with previous literature showing that geographic forecasts are more difficult to calculate for financial analysts because of the number of economic parameters(Roberts, 1989). Financial analysts could also be skeptical concerning the relevance of the segmentation adopted by the company and they could also have doubts about manipulated segment information (Mande & Ortman, 2002). Sometimes, financial analysts prefer to use consolidated models if the segments disclosed by the company do not fit their own usual segmentation of the business (Hussain & Skerratt, 1992).
Globally, the number of segments is not associated with the use of segment information except for the number of geographic segments disclosed in association with a LOB segmentation. We see that firms with 2 to 6 geographic segments generate a better score of the use of segment information. This is in line with Hussain's works (Hussain, 1997). Hypothesis 4 is also partially confirmed: the use of segment information by financial analysts is greater for firms that discriminate their LOB segments.

Concerning the impact of the nationality of the financial analyst, we find differences among the 3 countries analyzed confirming hypothesis 5: the nationality of the analyst impacts the level of' the use of segment information by financial analysts. The results show that, whatever the type of segmentation is, the use of segment information is greater for English financial analysts. French financial analysts score well of segment

information for LOB segmented firms while German financial analysts have lower scores.

Table 9 – Determinants of Segment Information's use – ANCOVA Results

	GEO - Tests of Between-Subjects Effects			***LOB - Tests of Between-Subjects Effects***		
Source	F	Sig.		F	Sig.	
Corrected Model	3.393	.000		2.436	.000	
Intercept	9.772	.003		18.815	.000	
Number Employees	19.747	.000	+++	21.849	.000	+++
Total Assets	1.279	.262		8.537	.004	+++
LOB Discrimination	4.481	.038	++	4.783	.030	++
GEO Discrimination	.409	.525		.699	.404	
Nbr. Of LOB Segments	1.519	.187		.458	.839	
Nbr. Of GEO Segments	1.196	.321		2.100	.038	++
Country	3.139	.050	++	3.228	.042	++
Interactions						
LOB Seg * GEO Seg	.143	.965		1.253	.250	
LOB Seg * Country	2.775	.025	++	1.217	.303	
GEO Seg * Country	.372	.828		.696	.712	
	N	R Squared	Adjusted R Squared	N	R Squared	Adjusted R Squared
	96	0.644	0.454	243	0.44	0.259
		Levene's Test of Equality of Error Variances			Levene's Test of Equality of Error Variances	
		F	Sig.		F	Sig.
		1.688	.041		2.990	.000

5 Conclusions and Future Research

The disclosure of segment information has been an issue for listed companies for decades. The first requirement on segment information disclosures emerged in the seventies and was justified by the needs of financial statements users. Since then, accounting standard setters, and especially the FASB and the IASB, have been trying to require the publication of relevant segment information for users. However, since the publication by the IASB in 2006 of its new standard on segment information, IFRS 8, which is convergent with the FASB's standard, some users, and especially in Europe, have been expressing concerns about the relevance of this standard. IFR8 was endorsed by the European Union under the condition that a Post Implementation Review (PIR) would be carried out within the 3 years of its application. In its Report and Feedbacks statement of the PIR issued in July 2013, the IASB admits that if IFRS 8 is generally supported by accounting firms, standard setters and regulators, investors expressed mixed views[2] (IASB, 2013a). Hence, the use of segment information by financial statements' users and the how to meet their needs are still at stake. Academic research can provide useful inputs to accounting standard setters.

In this research, we intended to better understand if segment information is really used by crucial users of financial statements: financial analysts. As most previous researches have been based on blue chips companies, we decided to focus on European listed intermediate size companies, which have been little investigated so far. We followed a quite innovative methodology as compared to most of studies dealing with segment information issues. Indeed, our research is based on analysts' recommendation reports.
In analyzing financial analysts' recommendation reports our aim was to measure whether financial analysts refer or not to segment information and to identify the determinants of their use of segment information. We find that (1) financial analysts largely refer to segment information in their recommendation reports showing that they remain very sensitive to both LOB and geographic segment information reported by the companies. (2) Even if segmental models are not frequently produced in their reports, financial analysts mostly use segmental forecasting models and segmental valuation models based on LOB segmentation. (3) The use of segment information by financial analysts is greater for larger firms than for smaller firms. (4) The use of segment information by financial analysts is greater when segment information is well discriminated. (5) We observe a greater use of segment information by English financial analysts.

This research is a first step and should be supplemented in two ways. First, the specific firm characteristics should be extended to financial characteristics (public float, liquidity) and to other business model's characteristics identified in the financial statements (goodwill, equity…). Another means of investigation might be to study the consistency of the use of segmental models to forecast and valuate. Does the use of such

[2] The IASB announced in July 2013 that, following the PIR, the staff would work on possible minor amendments to IFRS 8 to be considered by the Board by the end of year 2013.

models generate better predictability? Do segmental indicators lead to better or more accurate financial models?

Reporting segment information has always been an issue for firms. Understanding its uses remains essential for managers, regulators and researchers.

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