Aalto University
School of Business

The Effects of IFRS 8 on Segment Disclosure - Evidence from Finnish Listed Companies

Accounting

Master's thesis

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Abstract of master's thesis

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Abstract

RESEARCH OBJECTIVES

The aim of the study was to assess whether Finnish companies reported more and higher-quality information after the adoption of IFRS 8. The study compares companies' reporting under the previous standard IAS 14R to the level of disclosure under IFRS 8. In particular, the items of interest include the number of segments and segment line items, and the level of segment disaggregation and information about cross-segment transfers. In addition, the study examines the differences between early and regular adopters of the standard and investigates whether company size was related to the occurred reporting changes.

DATA AND METHODOLOGY

The final sample of the study consists of 110 listed Finnish companies. The segment reporting data for these companies was hand-collected from their annual reports to be able to compare segment reporting under the same financial year. The research questions were examined using statistical analysis with SPSS software. The reporting variables under both standards were compared with non-parametric Wilcoxon signed-ranks test according to the normality test results. The early adoption effect was investigated with Mann-Whitney-U-test and a correlation analysis was conducted to examine the size effect.

RESULTS

The results show that IFRS 8 had little impact on the segment disaggregation or on the number of segment line items The only significant changes were the substantial decreases in the disclosure levels of assets, liabilities, capital expenditure and equity method income per segment. In addition, the results show that early adopters changed their reporting considerably more than the regular adopters, and that company size did not affect the way the standard was responded to.

Keywords IFRS 8, IAS 14, segment reporting, management approach, financial reporting quality

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TUTKIMUKSEN TAVOITTEET

Tutkimuksen tavoite oli selvittää, muuttuiko suomalaisten yritysten segmenttiraportointi laadukkaammaksi uuden raportointistandardin IFRS 8:n myötä. Tutkimus vertailee yritysten raportointia edellisen standardin IAS 14R:n ja IFRS 8:n välillä. Kiinnostuksen kohteena ovat erityisesti raportoitujen segmenttien ja niitä kohti raportoitavien lukujen määrä, ja segmenttien erottelun taso sekä informaation määrä, jota raportointi antaa segmenttien välisistä transaktioista. Lisäksi tutkimus käsittelee eroja etuajassa standardin käyttöön ottaneiden yritysten raportoinnissa verrattuna muihin ja tutkii mikäli yrityksen koko vaikutti raportoinnin muutoksiin.

AINEISTO JA TUTKIMUSMENETELMÄ

Lopullinen aineisto koostui 110 suomalaisesta pörssiyrityksestä. Segmenttiraportointidata kerättiin käsin näiden yritysten vuosikertomuksista, jotta segmenttiraportointia voitiin verrata saman tilikauden ajalta. Tutkimuskysymyksiä tutkittiin tilastollisella analyysillä hyödyntäen SPSS-ohjelmaa. Raportointimuuttujia verrattiin Wilcoxonin testillä normaaliustestien tulosten mukaisesti. Etuajassa ja säännönmukaisesti standardin käyttöönottaneita yrityksiä verrattiin Mann-Whitney-U-testillä ja koon vaikutusta analysoitiin korrelaatioanalyysillä.

TULOKSET

Tulokset osoittavat että IFRS 8 ei vaikuttanut suomalaisyritysten raportoimien segmenttien lukumäärään eikä segmenteittäin raportoitujen erien määrään. Ainoat tilastollisesti merkitsevät muutokset havaittiin segmentin varojen, velkojen, investointien ja osakkuusyritysten tuloksen raportoinnissa, jotka laskivat merkittävästi. Tulokset kertovat lisäksi, että etuajassa standardin käyttöönottaneet yritykset muuttivat raportointiaan huomattavasti enemmän kuin muut, ja että yrityksen koolla ei ollut merkittävää vaikutusta siihen miten standardimuutokseen reagoitiin.

Avainsanat IFRS 8, IAS 14, segmenttiraportointi, johdon näkökulma, raportoinnin laatu

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ABBREVIATIONS

CODM = Chief Operating Decision Maker

FIN-FSA = Finnish Financial Supervisory Authority

GAAP = Generally Accepted Accounting Principles

ED = Exposure Draft

FASB = Financial Accounting Standards Board

IASB = International Accounting Standards Board

IASC = International Accounting Standards Committee

IAS = International Accounting Standards

IFRS = International Financial Reporting Standards

LOB = Line-of-Business

PIR = Post-Implementation-Review

SFAS = Statement of Financial Accounting Standards

1 INTRODUCTION

1.1 Background and Motivation

The International Financial Reporting Standards (IFRS) see the main user of the financial statements to be the investor (Haaramo & Räty 2009). As companies have grown larger and larger in size, to be useful for investment decisions the financial statements need to contain information about the different components of the whole entity (Epstein & Jermakowicz 2008). This part of the financial statements is called segment reporting, where the company's performance is cut into parts to help financial statement users identify the different risk and return profiles of these parts (Troberg et al. 2010). Good quality segment reporting reveals dissimilarities across the company and lowers the information asymmetry between the company owners and managers (Yoo & Semenenko 2012).

Segment reporting requirements were first introduced to U.S. GAAP in 1976, and the IAS (now IFRS) followed in 1981. These requirements included reporting performance figures by the different industries and different geographic areas in which the company operated. However, the first standards in use, SFAS No. 14 and IAS 14, failed to satisfy the financial statement users' needs, as the vast majority of companies claimed to operate in only one segment, even though this probably was not the case. To encourage more transparent reporting, the accounting standard setters FASB and IASC (now IASB) therefore revised their segment reporting standards and introduced tightened segment reporting requirements (Albrecht & Chipalkatti 1998.)

SFAS No. 131, a new standard from FASB, came into force in 1997. It requires companies to report segments in the financial statements as they are reported internally to the management. This practice is referred to as the "*management approach*". (FASB 1997.) IASC on the other hand published IAS 14 Revised, which became mandatory as of 1998. According to the standard, a segment was a separate business or a geographic part of a company, which contained similar risk and return characteristics. This practice in segment reporting is called either the "*industry approach*" or the "*risk and rewards –*

approach". (IASC 1997.)

However, later as a part of the international convergence efforts between the U.S. GAAP and the IFRS standards, the FASB and the IASB began to bind their segment reporting requirements together (Nobes and Parker 2008). At the time a lot of research had been conducted on the effects that both SFAS No. 131 and IAS 14R had had on companies' segment reporting. There was a consensus that SFAS No. 131 had resulted in a major change in segment reporting, as it was found that for example significantly more segments were reported, previously hidden information was released to the capital market and the value relevance of segment reporting increased (Berger & Hann 2003, Chen & Zhang 2003, Hermann & Thomas 2000). Even though IAS 14R was also found to marginally increase the number of segments and result in somewhat higher-quality reporting, its effect was considered to be a lot milder than of its American counterpart (Street & Nichols 2002, Maines et al. 1997).

As such, the IASB draw a conclusion that the management approach produced more relevant information than the industry approach, and decided to converge with the U.S. standard (IASB 2006a). IFRS 8, a standard equal to the reporting requirements of SFAS No. 131 was released in 2006 and became obligatory in financial reporting from the 1st of January 2009 (IASB 2006b). Despite the benefits expected based on the research results on SFAS No. 131, not all were convinced that the IASB was making the right choice when converging with the U.S. approach. For example the European Parliament (2007) commented that the standard had been approved without truly assessing whether it suits to Europe and in particular there were claims that the standard would place smaller companies in a competitively disadvantageous situation (Crawford et al. 2012).

Because of these mixed expectations, IFRS 8 became the first IFRS standard to be scrutinized under post-implementation review (PIR). The PIR process was finished in July 2013, and it included a comment letter process and investigation of academic research related to IFRS 8. (IASB 2013b.) Despite the review process being at end, little research exists on the effects of the standard. Primary research (e.g. Crawford et al. 2012, Nichols et al. 2012) has found that IFRS 8 did succeed in some of its goals, for instance in increasing the average amount of segments reported. However, the research has focused on larger companies (Nichols et al. 2012), and results obtained in one country cannot be generalized to another, as research shows that even though IFRS aims to harmonize accounting practices, national patterns in reporting still exist (Kvaal & Nobes 2012).

The purpose of this research is to examine what changes occurred in segment reporting after the adoption of IFRS 8 in Finland. Finnish companies provide an interesting source for research for several reasons. Firstly, Finnish listed companies are relatively small in size and investigating changes in their reporting can therefore help to fill the research gap in this matter. This is important because in general it has been found that larger companies have greater incentives to disclose higher-quality information (Lang & Lundholm 1993). Therefore, as IFRS 8 was published as a standard that was specifically aimed to increase the amount of segment information, larger companies under severe scrutiny may have had more pressure to alter their segment reporting, which therefore could have biased the obtained results on IFRS 8.

Secondly, Finnish companies have previously not been praised for the quality of their segment reporting. In fact, the Finnish Financial Supervisory Authority (FIN-FSA 2007) reported that under the previous segment reporting standard IAS 14R the level of segment quality was unacceptably low, with one third of the companies reporting only one segment. They expressed hopes that the new standard would encourage also Finnish companies to report their segments more openly and thus it is interesting to see whether the segment reporting quality has increased.

Finally, the effects of IFRS 8 to Finnish companies' reporting have not yet been thoroughly examined. Sjöman (2012) has investigated the quality effects of IFRS 8 in his master's thesis, and found that no major changes had occurred. However, his research used a smaller (55) sample of Finnish companies and focused on quality indicators such as the amount of words used to describe segments. This research on the other hand primarily aims to give descriptive results on what specifically was reported under both standards and how it changed, thus providing new evidence on how IFRS 8 affected Finnish companies' segment reporting.

1.2 Research Questions

The aim of this study is to assess the changes in segment reporting in Finland after the adoption of IFRS 8. Most importantly, the purpose is to shed light on whether the standard change induced Finnish companies to report more and higher-quality segment information. The reporting changes are an interesting research subject, because with the introduction of SFAS No. 131 in the United States it was discovered that companies reported more segments, more line items per each segment and more information was available about value transfers between different segments (Berger & Hann 2003, Hermann & Thomas 2000, Street & Nichols 2000).

Therefore, as a first research problem this study investigates whether these changes have also occurred in Finland after the adoption of the management approach. In particular, the research aims to give answers on what happened to the amount of segments and segment line items reported, which line items are reported and whether the new segment information is more disaggregated than before or gives more information about cross-segment transfers.

IFRS 8 also offered an option to apply the standard in financial statements even before it became mandatory in 2009 (IASB 2006b). This group of companies is called the early adopters. Earlier research has not examined whether there are differences in the way early adopters reacted to the standard change compared to the regular adopters, and another research question of this study is whether some kind of an early adoption effect exists.

The final problem addressed is the problem with company size. In general research has found that the quality of segment reporting is increasing with the company size (Lang & Lundholm 1993, Aitken et al. 1997, Ettredge et al. 2005). As explained above, the effect of IFRS 8 for smaller companies has not yet been investigated. Therefore it is interesting to examine whether the reporting changes done due to IFRS 8 are related to company size in this Finnish sample.

1.3 Sample and Method

The final sample of the study consists of 110 companies listed on the OMX Helsinki Stock Exchange. To control for other changes affecting segment reporting apart from the standard, the segment reporting data for these companies is hand-collected from their annual reports, so that original IAS 14R data is compared to the restated IFRS 8 data for the same financial year. To further mitigate the possibility of contamination, the collected data is checked with an algorithm developed by Berger and Hann (2003) to ensure that no acquisition, divestiture etc. will affect the obtained results.

The research questions are investigated with statistical analysis using SPSS software. The differences between the test variables under IAS 14R and IFRS 8 are tested with either a parametric t-test or a non-parametric Wilcoxon signed-ranks test based on results on normality tests. To investigate the possible early adoption effect, the results for early adopters are compared to the ones of the regular adopters by using an independent samples t-test or a non-parametric Mann-Whitney-U-test. To examine the size effect, correlation analysis is conducted.

1.4 Results

I found the overall impact of IFRS 8 to Finnish companies' reporting to be mild. On average, there were no significant changes in the number of segments or the number of line items reported. Also the level of segment disaggregation and the amount of information conveyed about cross-segment transfers were found to stay fairly similar. However, the results show that while the overall decrease in the number of segment line items disclosed was not statistically significant, for some sole line items the disclosure levels dropped significantly. These items include segment assets, segment liabilities, capital expenditure and equity method income per segment.

The results show a significant difference in the way early adopters and regular adopters reacted to the standard. The early adopters changed their segment reporting significantly more and to a more favorable direction than the regular adopters, thus supporting the existence of an early adoption effect. The analysis concerning the company size showed that larger companies tended to report higher-quality segment information under both standards, but that the changes in reporting were not significantly related to company size.

1.5 Structure of the Research

The rest of the study is organized as follows. Section two highlights the historical development of segment reporting standards ending with the international convergence of the standards and the reasons behind the choice for the management approach. Section three discusses the observed impact of IFRS 8 from both an academic research and a practical viewpoint. Section four presents the research hypotheses, the sample and explains the methodology of the study. The empirical results are presented in section five, and I conclude the research in section 6.

2 SEGMENT REPORTING IN FINANCIAL REPORTING STANDARDS

2.1 Why Segment Reporting Exists?

The need for segment reporting was noted first during the 1960s, when more and more companies became parts of a larger group of companies. Thus it became evident that the consolidated financial reporting alone was not sufficient to cover the growing information needs of equity investors, as important information was lost in the consolidation process. (Epstein & Jermakowicz 2008, Troberg 2007.) To tackle this problem, the international accounting standard setters, FASB and IASB, created segment reporting, which aims to "*provide information about the different types of business activities in which an enterprise engages and the different economic environments in which it operates*" (FASB 1997).

From a company's point of view, the motive to disclose segment information derives from the agency theory perspective, and its primary aim is to facilitate investors' earnings predictions. As noted previously, when a company has diversified into segments whose profits do not correlate with each other, consolidated information does not provide useful information for investors for earnings forecasts purpose. (Aitken et al. 1997.) Companies however wish to overcome this problem, and include segment information in their financial statements because it reduces information asymmetries between the company owners and managers, and therefore lowers the cost of equity capital (Yoo & Semenenko 2012).

Indeed, segment reporting has been developed as one of the specific disclosures required in the financial statements particularly intended for investors' use (Haaramo & Räty 2009). When segment reporting quality is high, financial statement users can identify the risk and return profiles of the different segments, and therefore better understand the organization as a whole (Troberg et al. 2010). Segment reporting should reveal companies' diversification strategies and its transfers of resources across its segments (Berger & Hann 2007). In a nutshell, useful segment reporting reveals dissimilarities inside the company to its investors (Troberg et al. 2010).

As segment reporting was developed for investors at their own request, it is self-evident that they consider segment information as one of the most valuable pieces of information for their decision making (Yoo & Semenenko 2012). For instance, in their survey of 140 sell-side analysts, Epstein and Palepu (1999) found that segment data is considered to be the most useful for investment decisions from all annual report information. Segment information was found to provide the analysts with additional insight into the past and future operating performance of both the company as a whole and by segment. Indeed, 93 % of the survey respondents claimed that they would prefer even more complete disclosure of product line and segment profitability.

2.2 The Evolution of Segment Reporting Standards

2.2.1 The First Standards and the Fundamental Problem of Segment Reporting

FASB issued its first segment reporting standard, SFAS No. 14, in 1976. This standard specified a segment as a relevant industry segment in which the company did business or a geographic area where the company had operations. The determination of which industries or geographic areas were considered as "relevant" for reporting was left to the companies themselves. A similar standard, IAS 14, was released by IASB in 1981. (Albrecht & Chipalkatti 1998.)

However, these standards were later found to be insufficient and too general in their reporting requirements. Most importantly, financial statement users felt that many companies took advantage of the vagueness of the standards, as they allowed the companies to decide which segments were relevant enough for reporting. Therefore, companies chose to report fewer segments than the investors would have preferred. At the time in the United States, 43 % of companies reaching revenues of 1 billion dollars reported only one segment. (Albrecht & Chipalkatti 1998.)

These findings highlighted the fundamental problem of segment reporting. This is the trade-off between informing the financial statement users with high-quality segment disclosures to lower the cost of equity capital and the benefit of not revealing this information to avoid proprietary and/or agency costs (Troberg et al. 2010). Academic research has found support for both the proprietary and agency cost hypotheses, thus explaining why companies behaved as they did when the relevance of segments was left to their own hands and was not guided in a stricter manner by the segment reporting standards.

If a company withholds segment information for proprietary cost reasons, it means that it fears to reveal information about profitable markets to its competitors (Troberg et al. 2010). Upon the disclosure of these profitable segments, more competition could enter to that particular market and hence decrease the level of profitability the company is currently enjoying (Berger & Hann 2007). Other possible negative outcomes include the increased bargaining power of the company suppliers and customers (Ettredge et al. 2002a). For instance, suppliers could try to identify in which segment they could ask for higher prices (Ettredge et al. 2002b). Therefore, in the presence of proprietary costs company managers would not disclose segments with high profits in their financial reporting. (Berger & Hann 2007.)

Hayes and Lundholm (1996) provided the first evidence to support the proprietary cost hypothesis. They investigated how companies choose the appropriate level of their segment reporting, given that the disclosures are scrutinized both by competitors and the capital market. They found that under severe competition, companies maximized their value when they reported all segments with similar results. If the segment results were dissimilar, companies would not disclose them separately but aggregated them into a single segment to protect the higher profitability of one of the segments.

Later, many other researchers have reported similar findings. Botosan and Stanford (2005) found that companies hided segments that operated in less competitive industries than the company’s primary industry and thus protected the abnormal profits obtained from these segments. Wang, Ettredge, Kwon and Smith (2011) reported that for those segments with high abnormal profitability, high industry concentration or low barriers to entry, the probability that a company would withhold from reporting this segment was increased. Also Harris (1998) found that company managers tended to conceal segments which earned higher rates of return on average and which had higher potential for abnormal profit persistence.

On the other hand, it is also possible that the companies' lack of enthusiasm to disclose more segments is due to agency cost reasons. The agency cost hypothesis assumes that segment information is withheld because of conflicts of interest between the company shareholders and its managers (Berger & Hann 2007). The managers do not want to reveal such information to shareholders that would indicate underperformance, i.e. they withhold from disclosing the value-reducing aspects of a company's diversification strategy (Bens et al. 2011). Therefore, upon the existence of agency costs, the company managers would not disclose segments with low profits to their financial reports (Berger & Hann 2007).

Lang and Lundholm (1993) were the first to give inclination of this kind of behavior, when they documented that the probability of disclosure is higher when the company is performing well rather than when it's performing poorly. Berger and Hann (2007) confirmed these findings by documenting that when the financial reporting standards allowed, company managers concealed low-performing segments with the objective to hide negative information from the company shareholders. Similarly, both Wang, Ettredge, Kwon and Smith (2011) and Bens, Berger and Monahan (2011) reported that segment disclosure was positively associated with segment profitability.

As seen by these results and also already earlier in practice, companies had many reasons to disclose fewer segments than would have been beneficial to investors. As this was the case the financial reporting standard setters needed to consider these incentives for companies to reveal or withhold information about underlying performance of the separate business activities, and adjust their standards accordingly (Hayes & Lundholm 1996). As requested by the public, both FASB and IASB began to revise their segment reporting requirements with the particular aim to increase the number of segments companies reported, and arrived to two different suggestions to solve the problems of the previous segment reporting standards.

2.2.2 IAS 14 Revised

Besides being criticized for allowing too broad management judgment in defining the reportable segments, IAS 14 was blamed for allowing companies to report dissimilar countries grouped as one geographic segment, not requiring enough items per segment to be disclosed and that the segments reported did not correspond to the company's internal reporting structure (Street & Nichols 2002). To meet the increasing needs of the international financial analyst community, the IASB (then the IASC) therefore set forth to revise its segment reporting standard and tightened the standard's definition of a reportable segment (Albrecht & Chipalkatti 1998).

The first draft of IAS 14 Revised was published in 1995, and it ultimately became effective from financial periods starting on or after 1st of July 1998. The standard introduced a risk and rewards –approach to segment reporting, which implied that what was reported as one segment had to contain only those operations, which had similar risk and reward characteristics. (Street & Nichols 2002.)

The basis of IAS 14R was that it required companies to report segments both by line-of-business (LOB) and geographically, therefore utilizing a two-tier approach in segment reporting. Companies had to choose which of these options was reported as the primary segments, based on their internal management structure. If a company was organized neither by product/service lines nor by geographic region, companies had to determine whether the primary source of their risks and rewards rose from the differences of their products/services or from the differences of the countries it had operations in. (IASC 1997.)

The choice of the primary and secondary segment was vital, because the reporting requirements IAS 14R set for the primary segments were considerably heavier than for the secondary segments. The original IAS 14 only required the reporting of segment revenue, result, assets and the basis for inter-segment pricing. As discussed, these requirements were found insufficient, and IAS 14R required a lot more items to be disclosed. (Street & Nichols 2002.)

For the primary segments, IAS 14R explicitly required reporting of external and internal revenue, segment result, segment assets and liabilities, the basis for inter-segment pricing, capital expenditure, depreciation and other non-cash expenses, equity method income and investment and reconciliation of all these items to the consolidated amounts reported. For the secondary segments the required items included external revenue, segment assets and capital expenditure. (IASC 1997.)

Besides tightening the definition of what was allowed to be reported inside one segment, IAS 14R also included a relevancy threshold for segment determination. This was a further attempt to reduce the possibility for management judgment in assessing which segments were relevant enough for reporting. All in all, IAS 14R required companies to report as segments a minimum of 75 % of all consolidated external revenue. About an individual segment the standard stated that it had to be reported, if:

- its external revenues constituted a minimum of 10 % of all segment revenue
- its profit or loss constituted a minimum of 10 % of all segment result
- its assets constituted a minimum of 10 % of all segment assets. (IASC 1997.)

All these requirements where hoped to encourage companies to report more segments than under the original IAS 14. The standard was also expected to result in companies reporting more specific geographic areas and reporting more segment line items per segment. (McConnell & Pacter 1995.)

2.2.3 SFAS No. 131

While the IASB chose a risk and rewards –approach for segment definition, the FASB concluded that the most important thing was to get companies report segments as they were reported internally. This decision was largely influenced by a report conducted by the Association for Investment Management and Research (AIMR 1993), which stated that more accurate investment decisions could be made if segment reporting reflected the way a company was managed and organized. As a result, the FASB introduced the management approach to segment reporting, and published a new segment reporting standard SFAS No. 131 in 1997, which was effective for fiscal periods starting on or after 15th of December 1997 (Albrecht & Chipalkatti 1998).

Determining segments with a management approach means that the segments are reported according to the company's internal management structure. According to the standard, a reportable operating segment is a component of a company which:

- engages in business activities from which it drives revenues and incurs expenses
- has its operating result regularly reviewed by the chief operating decision maker of the company
- has discrete financial information available. (FASB 1997.)

Of great importance in determining the segments is who is the chief operating decision maker (CODM) of the company. SFAS No. 131 states that this is more a function and not first and foremost a person. The CODM is the function in the company which decides how to allocate resources between segments and who also makes judgments about their performance. (FASB 1997.) For instance, this function could be the CEO or the COO, but also a group of company executives (Albrecht & Chipalkatti 1998).

Like IAS 14R, also SFAS No. 131 increased the segment line item reporting requirements. The only line items explicitly required are segment profitability measure, segment revenue, segment assets and reconciliation from these amounts to the consolidated reporting, meaning that the requirements of IAS 14R were more broad. However, SFAS No. 131 also requires the disclosure of the following segment line items, if they are included in the segment profitability measure disclosed or otherwise regularly reviewed by the CODM:

- external and internal revenue
- interest revenue and expense
- depreciation, depletion and amortization expense
- non-recurring items
- equity method income and investment
- income tax expense or benefit
- other non-cash expenses
- capital expenditure. (FASB 1997.)

A major change from the first segment reporting standard was also that the segment line item amounts should be reported in the same manner as they are reported to the CODM. This means that they do not have to account to GAAP principles. In addition, SFAS No. 131 holds the same quantitative thresholds for determining reportable segments as IAS 14R, but also provides additional segment aggregation criteria. These criteria state that two segments can only be aggregated into one if they have similar economic characteristics and are also similar when examined by each of the following:

- the nature of the products and services
- the nature of the production processes
- the type or class of customer for their products and services
- the methods of distribution for their products and services
- if applicable, the nature of the regulatory environment. (FASB 1997.)

A final major diversion from the old standard was the addition of enterprise-wide disclosures to segment reporting. These disclosures include information on the company’s products and services, information about geographical areas and information about major customers. For each product or service, or a group of similar products or services, companies must report the revenue information from external customers. Geographic information includes the requirement to disclose revenue and asset information by the country of domicile and by all material individual countries. Information about major customers means that companies must mention if a segment’s revenues includes a customer accounting for more than 10 % of the total revenue of that segment. (FASB 1997.) The requirement of reporting revenues by the country of domicile and by all material individual countries was expected to result in more specific geographic disclosures (Tsakumis et al. 2006).

The reaction to the introduction of the management approach to segment reporting in the United States was mostly positive. SFAS No. 131 was expected to enable financial statement users to “see the company through the eyes of its management”, and therefore more accurately forecast managerial actions and their effects on the future cash flows of the company. In addition, the standard was expected to lower reporting costs for companies, as they could use their internal reporting as a basis for external segment reporting. (Albrecht & Chipalkatti 1998.)

2.3 The International Convergence

IASB and FASB started their short-term convergence project in 2002, with the aim to reduce the differences in the financial reporting requirements of the two most-used sets of accounting principles (Nobes & Parker 2008). As a part of this project, the segment reporting standards of both regimes were taken under examination, and academic research findings on both of the standards were investigated (IASB 2006a, BC3). Based on these results, a conclusion could be made on which standard produced more relevant information and whether the IFRS should converge to U.S. GAAP and change the segment reporting principle to the management approach.

2.3.1 IAS 14 Revised vs. SFAS No. 131

As discussed, both IAS 14R and SFAS No. 131 were responses to the criticism that companies in general tended to report too few segments and deliberately hided information that would be useful for financial statement users. Therefore it was first important to assess whether the standards fulfilled their goal of increasing both the number of segments and segment line items reported.

A vast body of academic research concludes that SFAS No. 131 had a major effect to segment reporting in the United States. For example, both Hermann and Thomas (2000) and Street, Nichols and Gray (2000) found that over half of the companies in their sample increased their number of reported segments, while a small minority of less than 10 % decreased the number of segments. Berger and Hann (2003) further confirmed these findings with a larger sample. They reported that the number of multi-segment companies increased in their sample from 22 % to 40 %, and only less than 2 % of the sample decreased the amount of segments reported.

Regarding IAS 14R similar findings were reported, but overall the effect of the new standard was considered to be milder. Street and Nichols (2002) reported that in their sample 23 % of companies reported more segments, but for the majority the amount of segments reported stayed the same as under the previous standard. Also Prather-Kinsey and Meek (2004) found a marginal increase in the number of reported segments, with approximately half of the sample changing the number of business and geographic segments reported.

This same effect was found for both standards also regarding the segment line items. Hermann and Thomas (2000) documented an increase in the mean number of segment line items reported after the adoption of SFAS No. 131. They found most significant increases in the reporting of tax expense, interest expense and revenue, non-cash items and equity method investment and income. Respectively for IAS 14R, Prather-Kinsey and Meek (2004) and Street and Nichols (2002) reported increased number of segment line items, with major increases in the reporting of capital expenditure, depreciation, segment liabilities, non-cash items and equity method income. However, neither SFAS No. 131 nor IAS 14R succeeded in increasing the disclosure of research and development expenditure by segment (Hermann & Thomas 2000, Street & Nichols 2002).

Secondly, the impact the standards had on geographic segment disclosures has to be evaluated, as part of the criticism for the old ones included a notion that the geographic areas reported were too large in size and not specific enough (Nichols et al. 2000). Both Hermann and Thomas (2000) and Nichols, Street and Gray (2000) reported that SFAS No. 131 increased the number of individual country segments. For example, Nichols, Street and Gray (2000) found that the percentage of companies reporting country-specific geographic segment information rose from 4 % to 28 %. They argue that this increase should facilitate making more accurate sales forecasts.

For IAS 14R the results however were not as promising. Street and Nichols (2002) reported that most of their sample companies continued to report their geographic segments under similar vague groupings used under IAS 14, and only 16 % were found to report country-specific information, compared to the 28 % under SFAS No. 131.

Thirdly, as the first segment reporting standards were stated to leave too much room for company management judgment, it is interesting to see whether the new standards succeeded in narrowing this flexibility in segment determination. For SFAS No. 131, the academic research concludes that it forced companies to reveal previously hidden segments, therefore succeeding in reducing possibilities for managerial judgment. Again for IAS 14R, the results are less convincing.

Berger and Hann (2007) found that company managers used the flexibility under SFAS No. 14 to conceal low-performing segments, which they were then forced to report after the adoption of SFAS No. 131. In contrast, Botosan and Stanford (2005) found that managers used the flexibility of SFAS No. 14 to hide segments with high abnormal profits, and that many multi-segment companies masqueraded themselves as single-segment companies under SFAS No. 14. Therefore, it seems that irrespectively of whether companies hided segments for proprietary or agency costs reasons, SFAS No. 131 imposed such strict guidelines for segment determination, that companies had to report their segments more openly.

Nichols and Street (2007) investigated whether IAS 14R also succeeded in reducing the flexibility of management to hide useful segment information from financial statement users. Their findings indicated that the flexibility of segment determination had persisted even after IAS 14R, as the new standard still allowed managers to combine segments to protect excess returns, therefore again implying that the management approach of SFAS No. 131 proved to be more successful than the risks and rewards -approach.

In addition to these results, it seems that SFAS No. 131 topped IAS 14R when it comes to how the standards affected the financial analysts' perceived reliability of segment information. Maines, McDaniel and Harris (1997) reported that segment reporting was perceived as more reliable when external and internal segments were aligned, thus supporting the management approach of SFAS No. 131. In addition, this reliability was not decreased even when these segments contained dissimilar products, as long as they were reported according to the internal reporting structure of the company. The results suggested that the management approach of SFAS No. 131 increased investors' confidence that the management does not obscure necessary segment information, but that this same effect could not be found to be true for IAS 14R. In a similar manner, also Chen and Zhang (2003) have documented that the value relevance of segment data is higher when the same data is also used for internal management decisions, further supporting the management approach in segment reporting.

2.3.2 Additional Research on SFAS No. 131

Besides the comparison of the academic research results presented in the previous chapter, the IASB also investigated additional research done on SFAS No. 131 (IASB 2006a, BC3). This research includes information on the effects that the standard had on financial analysts' information environment and the security market effects associated with the adoption of the management approach. These research results are discussed next.

Berger and Hann (2003) provided a comprehensive view on what effect the new standard had on analysts' information environment. Their results indicated that while the analysts did know some of the SFAS No. 131 information even before its release, for those companies that did change their reporting practices, the analysts' forecasts errors dropped significantly, from 2.41 % to 1.94 % of price. The new standard particularly enhanced analysts' earnings forecasts. The researchers argued that this meant that the analysts were unaware of a significant portion of the segment data before the introduction of SFAS No. 131.

Overall, Berger and Hann (2003) suggested that the level of segment disaggregation improved with the introduction of SFAS No. 131, and at the same time it informed financial statement users of the previously hidden company diversification strategies and resource transfers across segments. These changes were found to affect the market valuation and company behaviour and therefore they implied that the new standard facilitated external monitoring purposes, thus improving the information environment.

Many researchers have then arrived to the same conclusions. Botosan and Stanford (2005) found a significant increase in the consensus of analysts' estimates after SFAS No. 131. According to the researchers this suggested an increased reliance on public information. Also Wang, Ettredge, Huang and Sun (2011) reported increased segment disaggregation levels since greater gross-segment variability in growth rates were reported post-SFAS No. 131. On the other hand Ettredge, Kwon, Smith and Stone (2006) documented an increased variability in reported segment profits, which implied that new information about company diversity was released with SFAS No. 131.

On top of this vast research done on the effects that line-of-business segment reporting had on analysts' information environment, Hope, Thomas and Winterbotham (2006) addressed the changes due to new geographic information. They found that even when companies had stopped disclosing geographic segment earnings under the new standard, the analysts' future earnings forecasts errors were not significantly affected, thus supporting the wording of the SFAS No. 131. In addition, Behn, Nichols and Street (2002) showed a significant increase in the predictive accuracy of geographic segment disclosures under SFAS No. 131 compared to its predecessor. The researchers argued that this improvement might be due to the new requirement to disclose sales by country, in comparison to the vague groupings often used under SFAS No. 14.

Also the security market effects of SFAS No. 131 were widely found to be positive. Ettredge, Kwon, Smith and Zarowin (2005) investigated whether the adoption of SFAS No. 131 resulted in an increase in the stock market's ability to predict companies' future earnings. To address the problem, the researchers investigated the association between current-year stock returns and next-year corporate earnings. Their results showed a significant increase in the future earnings response coefficient for all other companies than single-segment companies that remained single-segment also under SFAS No. 131. Also for those companies that did not increase their number of reported segments or even decreased it the increase in the coefficient is significant, implying that SFAS No. 131 also had qualitative effects on top of quantitative ones. In conclusion, the researchers stated that the stock price informativeness was increased and more information to the capital market about future earnings was reported.

Also Park (2011) investigated the relevance and usefulness of SFAS No. 131 for the stock market, specifically the extent to which it improved the stock prices' anticipation of industry-wide and firm-specific components of future earnings. The study focused on companies that increased the number of segment reported post-SFAS No. 131 and examined what kind of an effect this had on the association between current stock price and future earnings. The results indicated that SFAS No. 131 facilitated the predicting of the industry-wide component of future earnings for companies that had previously aggregated their segment information. The results therefore suggested that the new standard provided new and insightful information about the reported segments, and improved the intra-industry information transfer in the stock market.

On the geographic segment side, Hope, Kang, Thomas and Vasvari (2008) investigated whether investors' pricing of foreign earnings changed after the adoption of SFAS No. 131. More specifically, they examined whether the earnings response coefficient (ERC) increased after the adoption of the new standard and whether previously documented market mispricing was decreased. Their results concluded that foreign ERCs increased significantly after the introduction of SFAS No. 131 and that the mispricing effect observed in the pre-SFAS No. 131 period disappeared after the adoption. The researchers therefore drove a conclusion that SFAS No. 131 succeeded in enhancing the value relevance of foreign earnings numbers, and that investors discounted foreign earnings before because companies had poor segment disclosure levels under SFAS No 14.

To summarize the research results on both SFAS No. 131 and IAS 14R, Table 1 presents the observed effects for both standards.

TABLE 1.

Summary of Academic Research Results on SFAS No. 131 and IAS 14R

	SFAS No. 131	IAS 14R
No of segments	- Majority changed the no of segments reported - On average the amount of segments increased *(Hermann & Thomas 2000, Street et al. 2000, Berger & Hann 2003)*	- Minority changed the no of segments reported - On average the amount of segments increased *(Street & Nichols 2002, Prather-Kinsey & Meek 2004)*
No of segment line items	- On average the amount of line items increased *(Hermann & Thomas 2000)*	- On average the amount of line items increased *(Street & Nichols 2002, Prather-Kinsey & Meek 2004)*
No of geographic segments	- On average the amount of segments increased *(Hermann & Thomas 2000, Nichols et al. 2000)*	- On average the amount of segments increased *(Street & Nichols 2002)*
Room for management judgment	- Decreased, companies reported previously hidden high- and low-performing segments *(Berger & Hann 2007, Botosan & Stanford 2005)*	- Did not change, flexibility in segment determination persisted *(Nichols & Street 2007)*
Reliability of segment information	- Increased perceived reliability and value relevance *(Maines et al. 1997, Cheng & Zhang 2003)*	- No observable change *(Maines et al. 1997)*
Effect on analyst information environment	- Decreased analyst forecast errors - New information about company diversification strategies - Increase in the predictive accuracy of geographic disclosures *(Berger & Hann 2003, Ettredge et al. 2006, Behn et al. 2002)*	n/a
Security market effects	- Increased stock price informativeness - More information about future earnings conveyed - Enchanced value relevance of foreign earnings *(Ettredge et al. 2005, Hope et al. 2008)*	n/a

2.3.3 IFRS 8

After detailed investigation of the research results presented above and discussions with financial statement users, the IASB noted five primary benefits that it expected if IFRS was to converge with the management approach of SFAS No. 131. Firstly, that companies would report segments corresponding to the internal management reports; secondly, that companies would report segment information more consistent with other parts of the annual reports; thirdly, that some companies would report more segments; fourthly, that more interim segment information would be reported and finally, that the cost of providing segment information would be reduced as two sets of segment reporting would no longer be required. (IASB 2006a, BC8.)

As a possible disadvantage of the management approach the IASB noted that some companies might report segment information that would not be reported in accordance of the general accounting principles, thus damaging the credibility of the financial statements. The Board however stated that this kind of reporting would be unlikely, as companies were not likely to have two sets of accounting policies in use. Therefore the Board concluded that the advantages of the management approach of SFAS No. 131 far exceeded the possible disadvantages, and proposed that the IFRS should converge with the American approach. (IASB 2006a, BC9-BC12.)

After this conclusion, the IASB published the Exposure Draft 8 in 2006, which later became the new segment reporting standard IFRS 8: "*Operating Segments*". The requirements of IFRS 8 are the same as the previously presented SFAS No. 131 (see p. 12-14), with only slight deviations. The only notable difference to SFAS No. 131 is that IFRS 8 only explicitly requires the disclosure of segment profitability measure for each segment, whereas SFAS No. 131 also requires the disclosure of segment assets. The disclosure of segment assets becomes compulsory under IFRS 8 if it is regularly provided to the chief operating decision maker (CODM) of the company. (IASB 2006b.)

Companies using IFRS have had to use IFRS 8 as their segment reporting regime from financial years beginning on or after 1st of January 2009. The standard also offered a possibility for early adoption, i.e. changing the segment reporting from IAS 14R to IFRS 8 even before this date. (IASB 2006b.)

2.3.4 The Differences between IAS 14 Revised and IFRS 8

The main difference between IAS 14R and IFRS 8 is in the way they define a reportable segment. In the new standard, segments are defined from the management perspective and segment reporting is based on a company's internal reporting (Epstein & Jermakowicz 2008). In IAS 14R segments were divided to primary and secondary segments, which were either line-of-business or geographic segments. The decision whether geographic or line-of-business segments were reported as primary segments was based on which of the two was the main cause of risks and return rates for the company. (Nirkkonen 2006.) IFRS 8 also differs from IAS 14R in the disclosure requirements of segment line items, as the only mandatory item to disclose is the segment profit (IASB 2006b), whereas IAS 14R required multiple segment line items (IASC 1997).

It is also important to note that while IAS 14R defined segments as either line-of-business segments or geographic segments, under IFRS 8 it is possible to report segments in numerous different ways (Nichols et al. 2012). The segments could be arranged for instance based on the legal entities of the company. Therefore, the segments reported under IAS 14R and IFRS 8 might not be directly comparable.

Another important change was the decision to allow non-IFRS measures in segment reporting, as in IFRS 8 the segment line items need to be reported exactly as they are reported to the Chief Operating Decision Maker of the company, even if they were non-IFRS measures. In IAS 14R the segment reporting figures were reported with the same accounting principles as the other parts of the financial statements. (Epstein & Jermakowicz 2008.)

Furthermore, the entity-wide disclosures introduced in IFRS 8 were also a new requirement. They were developed to compensate for the possible loss of information that could occur as companies were no longer required to report two types of segments (both geographic and line-of-business). IFRS 8 therefore requires companies to report information on their products and services, their main countries of operations and on major customers, as explained previously on page 14. (IASB 2006b.)

Table 2 summarizes the main characteristics of both segment reporting standards.

TABLE 2.

IAS 14R vs. IFRS 8. Adapted from Crawford et al. (2012).

	IAS 14R	IFRS 8
Approach	Risk and rewards approach	Management approach
Identification of segments	Normally the identification is based on a company's internal organizational and financial reporting structure.	The identification is based on internal reports that are regularly reviewed by the chief operating decision maker (CODM).
Definition of segments	A distinguishable component of a company that is subject to different risks and return rates from other segments.	A business component whose operating results the CODM regularly reviews to allocate resources and assess performance, and for which discrete financial information is available.
Types of segment	Business and geographic.	Operating segments.
Measurement	Segment information is prepared in accordance with the accounting policies of IFRS. The standard defines how segment revenue, expense, result assets and liabilities are calculated.	Segment information is reported as it is reported to the CODM, thus IFRS measures are not required. An explanation of how segment results and assets are measured is required.
General information disclosures	Types of activity in each business segment and composition of each geographic segment.	Factors used in identifying the reportable segments and types of activities from which the segment earns revenues.
Reconciliation	Primary segment reconciliations: - Segment revenue to total revenue from external customers - Segment result to total result - Segment assets to total assets - Segment liabilities to total liabilities	Operating segments reconciliations: - Segment revenue to total revenue - Segment result to total result - Segment assets to total assets - Segment liabilities (if reported) to total liabilities

TABLE 2.

IAS 14R vs. IFRS 8. Adapted from Crawford et al. (2012).

	IAS 14R	IFRS 8
Segment disclosures required	Primary segment: - Segment revenue from external customers - Segment revenue from other segments - Segment result from continuing and discontinuing operations - Segment assets - Segment liabilities - Capital expenditure - Depreciation and amortization - Significant non-cash expenses - Share of result and investment in equity method investments Secondary segment: - Segment revenue to external customers - Carrying amount of segment assets - Capital expenditure	Operating segments: - Segment result Disclosure required if included in segment result and/or reviewed by CODM: - Segment assets - Segment liabilities - Segment revenue from external customers - Segment revenue from other segments - Interest revenue and expense - Depreciation and amortization - Other material income/expense items - Share of result and investment in equity method investments - Income tax expense or income - Significant non-cash expenses
Entity-wide disclosures	n/a	Disclosure consistent with the company's financial statements: - Revenue from external customers for each product or service - Information about geographical areas: revenue from external customers attributed to and the non-current assets for the entity's country of domicile and to all foreign countries in total - Information about major customers: revenue from significant customers and segments reporting that revenue

3 THE IMPACT OF IFRS 8

3.1 Reactions to Exposure Draft 8

The publishing of Exposure Draft 8 that later became the new segment reporting standard IFRS 8 in 2006 started a heated discussion on the possible benefits and disadvantages of the management approach, and thus segment reporting became a hot topic in the financial accounting world (Nobes & Parker 2008). Despite disagreements over whether the decision to converge with the U.S. standard was a good one, the overall expectation was that IFRS 8 would lead to increased segment disclosure as well as to greater corporate transparency (Katselas et al. 2011).

In the Basis for Conclusions for ED 8, the IASB argues that the management approach could improve the user’s ability to predict actions or reactions by company management that could have a significant effect on the company’s prospects for future cash flows (IASB 2006a, BC5). However, some expressed concerns that the American approach would not fit into the countries using IFRS standards. For instance, Albrecht and Chipalkatti (1998) have noted that the management approach might not suit a reporting system that operates in different financial reporting environments. As companies using the IFRS operate in different countries under different regulatory requirements, management styles differ from country to country, and therefore the way the segments would be determined would also differ. This is turn would result in the lack of comparability between companies (Crawford et al. 2012).

The European Parliament (2007) also had its doubts whether the management approach would fit into Europe, and commented that “*convergence of accounting is not a one-sided process where one party simply copies the financial reporting standards of the other party*”. They feared that the implementation of IFRS 8 had been done without addressing the needs of small and medium-sized companies, which are more common in Europe than in the United States. The parliament also stated that as IFRS 8 did not anymore specifically require geographic segment disclosures, the amount of geographic information could therefore decrease in relation to IAS 14R.

Especially the size differences between European and American companies provoked comments about the adoption of the management approach. Some were worried that after IFRS 8 companies would be forced to reveal commercially sensitive information, that could be especially harmful for smaller entities, as after releasing the information it might be obvious with whom these companies were dealing with in key areas. The commenters stated that these smaller companies were in a fragile state and needed protection in order to grow and thus should be excluded from releasing commercially disadvantageous segment information. (Crawford et al. 2012.)

For example the organization for British small listed companies, The Quoted Companies Alliance (QCA 2006) commented that IFRS 8 would place smaller companies at a disadvantage compared to larger ones. They argued that the academic research results obtained in the United States could not be considered as proof of the benefits of the management approach in this case, as European companies are much smaller when they are listed than the U.S. ones. In addition they stated that in the worst case scenario the adoption of the standard would lead to companies having two sets of managerial reports, out of which one would be used internally and the other for external reporting.

Other concerns concerning IFRS 8 also included the fact that the information provided would not be useful for stewardship and external user decisions, as it was prepared for internal use. The term CODM was also feared to cause misjudgments, and others did not like the possibility to report segment information using non-IFRS measures. (Crawford et al. 2012.) The use of non-IFRS measures and the fact that IFRS 8 does not specifically define the measure for segment profit or loss were the reasons that drove three of the IASB members to vote against the convergence. The board members suggested that the use of non-IFRS measures would be misleading and result in non-consistent reporting. (IASB 2006a, AV2-AV5.) Also Hussain (2007) noted that as companies go through internal restructurings quite often, the reported segments might differ every year.

However, also SFAS No. 131 received negative reactions upon its release in the United States. Especially companies themselves were against it, as for example Ettredge, Kwon and Smith (2002a) documented that 85 % of companies that sent comment letters to FASB regarding the new standard were against it. This was later found out to be because they expected that the standard would make them report more segment information.

In a similar manner, Katselas, Birt and Kang (2011) investigated the comment letters received from the Exposure Draft 8 and hypothesized that a company's lobbying position towards the increased mandatory disclosure under IFRS 8 would be aligned with the perceived benefits and costs from the increased disclosure. Accordingly, they documented that companies, which reported only two or fewer segments under IAS 14R, were against the new standard, indicating that they feared the possibility of revealing proprietary information to the market in the form of increased disclosure. Thus, the general expectation that IFRS 8 would increase the quantity of segment disclosures was acceptable, despite the faced criticism.

3.2 Changes in Segment Reporting Information

The research done on the effects that the introduction of IFRS 8 has until date primarily focused on larger companies and the descriptive changes the new standard brought into segment reporting information. While conducting their post-implementation review (PIR) of IFRS 8 the IASB has noted that based on the academic research results on general a large number of companies have not changed the amount of segments reported. On average however, the number of reported segments has not decreased and when a change in the reporting practice did occur, it was more likely an increase than a decrease. (IASB 2013a.)

Crawford, Extance, Helliar and Power (2012) investigated a sample of 150 U.K. companies to address the changes IFRS 8 had resulted in. They reported an increase in the number of reported segments, which rose from 3.30 to 3.56 segments. Nichols, Street and Cereola (2012) examined a larger sample of 335 companies from the top tier index of 14 European stock exchanges. They found the average number of segments reported to increase from 3.84 to 4.0. Overall, 27 % of their sample companies increased the number of reported segments, while 11 % decreased it. The researchers however noted that the increase in the reported segments was not as notable as it was with SFAS No. 131 in the United States, as the majority of the companies reported the same amount or even fewer segments. This same finding was reported by the European Securities Market Authority (2011), who reported that 74 % of their sample companies maintained the number of reported segments.

Also only few changes have occurred in the reported segment line items. In their PIR, IASB summarized that on average the number of segment line items has not decreased. However, some items are no longer reported, notably for example segment liabilities and capital expenditure, and this has raised a concern that material items are no longer allocated to segments. On a positive side, the IASB noted that more companies had started to report more than one measure of segment profit. (IASB 2013a.)

Despite these average findings, Crawford, Extance, Helliar and Power (2012) report a decrease in the reported line items per segment, from 7.57 to 6.99. However, similarly to the IASB's summary, they reported that the most significant declines were found in the reporting of segment liabilities, capital expenditure and total carrying amount of assets by location. Also Nichols, Street and Cereola (2012) report an average decrease in the reported segment line items, from 8.79 to 8.38. They found the most notable declines in the reporting of segment liabilities, equity method income and investment, capital expenditures and research and development costs. However, according to the IASB's objectives, their results show a significant increase in the number of companies reporting more than one segment profitability measure. These measures include non-IFRS measures such as operating income, EBIT, EBT, and EBITDA.

According to the primary research the most positive changes have occurred in the geographical segment reporting. Crawford, Extance, Helliar and Power (2012) found that more location-specific geographic information was reported. Nichols, Street and Cereola (2012) also reported an increase in the quality of geographic segment disclosures. They found an overall increase in the reported geographic areas from 4.68

to 5.35. The percentage of companies reporting geographic segments based on vague groupings of countries also dropped from 17 % to 10 %. The researchers argued that this more country-specific information should be more relevant to the financial statement users.

One of IASB’s goals also already investigated is the consistency of the segment reporting information with other parts of the annual report. In this respect the research results are mixed, as some report that a great majority of companies report information consistent with the management discussion and analysis and the introductory part of the annual report (Nichols et al. 2012), but others find that inconsistencies persist even after IFRS 8. Crawford, Extance, Helliar and Power (2012) for example reported that for a sub-sample they identify a mean number of 4 reported segments by products or services, but the annual reports on average refer to 7 different segments by products or services.

Overall, it seems IFRS 8 has managed to change companies’ reporting practices so that segments are reported in a slightly more disaggregated manner, which should be more decision-useful for financial statement users (Crawford et al. 2012). However, the results are much less impactful than those found in the United States with the introduction of SFAS No. 131. During the PIR the IASB (2013a) has concluded that this might be because companies could have already aligned their internal reporting with the published segments under IAS 14R. As discussed, the primary research has also merely focused on larger companies, and more research is needed to address the changes occurred in smaller entities’ reporting (Nichols et al. 2012). Further research is also needed to investigate the changes in the analysts’ information environment and whether the standard reduced information asymmetry or the cost of capital, to truly assess its impact (IASB 2013a).

3.3 Other Findings

Overall, during the PIR-process all information collected indicates that segment information is important for investors and other financial statement users, but that despite some benefits, the application of IFRS 8 has also raised some worries. (IASB 2013a.) Many different stakeholders, such as analysts, auditors or market authorities, have indicated their opinions through the comment letter –process included in the PIR or by issuing a direct report to the IASB.

The comment letters reveal that the IASB had correctly anticipated at least one benefit in its objectives for IFRS 8, i.e. reducing the cost of providing segment information. The commenters have stated that the cost for preparers has decreased due to the increased efficiencies in merging internal and external processes and systems. Specifically they stated that segment reporting is now less burdensome and that their communication with investors has improved. There is also support for the argument that management discussion and analysis are now better aligned with the segment information, thus increasing the information value for both. (IASB 2013a.)

Some credit has also been given to the possibility to use non-IFRS measures and the requirement to disclose only those segment line items that are reported to the CODM. Commenters have stated that non-IFRS measures communicate information about operating risks and performance, as they exclude transactions that are out of the control of the management, such as exchange rates. The financial statement preparers also expressed that as the standard only requires reporting those line items that are reported to the CODM, segment reporting no longer includes line items that are artificially allocated to each segment to comply with the reporting standard. Also investors were found to be of the opinion that now the line items represent the key items for monitoring the company internally, thus increasing the understanding on how the entity is managed. (IASB 2013a.)

In addition to these perceived benefits, some possible disadvantages of the standard have also been expressed. From the investors' point of view, the most addressing concerns were stated to be the loss of comparability between companies, loss of particular key segment line items and lack of detail. The loss of comparability was mainly felt to be due to the use of non-IFRS measures. Specifically the concern was that many companies did not provide reconciliations from these measures to IFRS measures. (IASB 2013a.) This same concern was shared in a report by the European Securities Market Authority (ESMA 2011). Investors also expressed their opinion that they did not anymore have enough detailed information for their analytical work, as the disclosure of cash flow, segment assets, segment liabilities and capital expenditure had decreased. (IASB 2013a.)

For financial statement preparers the main difficulties with the new standard seemed to concern the identification of the CODM and segment aggregation criteria (see explanations on page 13-14). Aggregation guidance was found to be insufficient, and commenters feared that this would lead to the aggregation of dissimilar segments. Many commenters felt that the aggregation criteria in the standard is so strict that reporting accordingly would result in aggregation being impossible in practice. The commenters have also asked for more guidance on what constitutes similar economic characteristics, which is used as the aggregation criteria in the standard. (IASB 2013a.)

The ESMA (2011) report further opens these concerns. Firstly, they argued that the CODM term itself suggests that the body is involved in making operative decisions, but the task of resource allocation suggests that the body also holds a strategic position. For instance, 41 % of the companies investigated identified the Board of Directors as the CODM in spite of the fact that this body usually includes also non-executive directors. As these non-executive directors are not involved in operative decisions it would suggest that allocating resources and assessing segment performance are not always carried out by the same body or by using the same information. When the Board of Directors is identified as the CODM, ESMA expressed fears that it would lead to a less detailed level of segment information, and it also appeared that the judgment used to identify the CODM had resulted in a reduction of reportable segments.

Secondly, regarding the segment aggregation criteria of the standard ESMA reports that it is not always clear which factors have been considered in determining whether two segments have similar economic characteristics or not. In addition, the majority of their sample companies had not disclosed the fact whether segments had been aggregated. ESMA feared that this lack of disclosure would have led to companies reporting segments at a lower level than they do internally to their management, thus indicating non-compliance with the standard. ESMA stated that there exists a level of subjectivity in the standard's aggregation criteria, which therefore tempts companies to aggregate segments that should be reported individually, and thus would provide another explanation to the rather low increases in the number of reported segments. (ESMA 2011.)

From the comments of auditors the main concern that has risen to attention was the increased tension with their clients on agreeing which segments to report. Auditors reported that companies are concerned about the commercial sensitivity of the information they are obliged to release. This was found to be particularly true for jurisdictions with smaller capital markets, which have a lot of family-run businesses and in general smaller entities. There were arguments that IFRS 8 is unfair to those companies which compete in markets where their competition are much larger entities which can aggregate their commercially sensitive information to other segments. (IASB 2013a.)

As a summary, it can be stated that IFRS 8 has seemed to accomplish some of its goals, such as the ones that some companies would increase the amount of segments reported and that the cost for segment reporting would decrease. However, also some concerns expressed by the critics upon the standard's release have materialized, such as the loss of comparability between companies and the suggestion that the standard puts smaller companies in a tougher position. Therefore, it is easy to drive the same conclusion as the IASB (2013a), that further information on the effect of IFRS 8 is still needed.

4 RESEARCH DESIGN

4.1 Hypotheses

The aim of this study is to assess the changes occurred in segment reporting in Finland after the adoption of IFRS 8, and whether there are indications of increased segment reporting quality due to the adoption of the management approach. To measure the reporting changes, the study uses the number of segments and the number of segment line items, and the quality respect is investigated with segment disaggregation and cross-segment transfer measures.

As discussed earlier, the increase in the number of reported segments was one of the most notable effects that the introduction of management approach had to segment reporting in the USA (e.g. Berger & Hann 2003, Hermann & Thomas 2000, Street & Nichols 2000). This increase was also a major goal set by the IASB when the new standard was issued (IASB 2006a). Primary research results on the effect of IFRS 8 also support the increase in the number of reported segments (Nichols et al. 2012, Crawford et al. 2012), and therefore the first hypothesis is stated as follows:

> **H1a.** The number of reported segments increases after the adoption of IFRS 8.
> **H1b.** The number of companies reporting only a single segment decreases after the adoption of IFRS 8.

Another way to measure the changes in segment reporting is through the line items reported per each segment. In their research Nichols, Street and Cereola (2012) found that with IFRS 8 the amount of reported line items decreased, as the average items reported dropped from 8.79 items to 8.38 items. The same result was documented by Crawford, Extance, Helliar and Power (2012), who found a decrease from 7.57 items to 6.99 items. Some criticism had been placed on the fact that IFRS 8 does not specifically require for any other item disclosure than the segment profitability. Therefore the critics expected that the number of items reported would decrease. (Nichols et al. 2012.) However, regarding the IASB's hope that companies would report new measures of segment performance the primary research finds support for. Nichols, Street and

Cereola (2012) reported an increase in the number of companies reporting more than one measure of segment profitability. In light of these results, the next hypothesis is the following:

> **H2a.** The number of items disclosed for each segment decreases after the adoption of IFRS 8.
> **H2b.** The number of companies reporting more than one measure of segment profitability increases after the adoption of IFRS 8.

To compare two reporting practices with the number of reported segments and segment line items only would be a rather crude quality measurement of segment reporting (Berger & Hann 2003). Therefore, the investigation is extended with measures of the level of reported segment disaggregation and cross-segment transfers. Earlier research states that the usefulness of segment reporting increases with segment disaggregation (e.g. Nichols & Street 2007). In the same manner, high quality segment reporting reveals information about the resource transfers across the reported segments (Berger & Hann 2007). As this is the case, for IFRS 8 to have been effective in improving the quality of segment reporting, both of these characteristics should have been improved. Berger and Hann (2003) found support that SFAS No. 131 increased segment disaggregation and that it conveyed more information about cross-segment transfers, and thus the next hypothesis is stated as follows:

> **H3a.** The segment disaggregation measures show an increased level of disaggregation after the adoption of IFRS 8.
> **H3b.** The cross-segment transfer measures show an increased amount of information after the adoption of IFRS 8.

The next issue investigated in the study concerns the possible early adoption effect. IFRS 8 became mandatory from the financial year 2009 onwards, but it offered a possibility for companies to start utilizing it even before this date (IASB 2006b). Earlier research has not covered whether the early adopters reacted differently to the standard change than the ones that adopted it when it became mandatory. However, there is evidence that companies behave strategically in deciding what they disclose to their segment reporting footnote (Hayes & Lundholm 1996, Bens et al. 2011). As such, it is reasonable to expect that companies chose to early adopt IFRS 8 because they knew they had to make changes to their reporting sooner or later, and decided to do it sooner. In this respect, the next hypothesis is the following:

> **H4.** The early adopters made more changes to their segment reporting after adopting IFRS 8 than the regular adopters.

The final question this study aims to address is whether the company size had a significant effect on the changes that companies made to their segment reporting. Earlier research suggests that larger and more complex companies have higher quality reporting (e.g. Lang & Lundholm 1993, Aitken et al. 1997, Ettredge et al. 2005). Claims have also been made that smaller companies might be more negatively affected if they would release highly disaggregated segment information, as their larger competitors would take the benefit of it (Crawford et al. 2012). Also, it has been found that larger companies have more capital market incentives to disclose more segment information (Ettredge et al. 2006). Therefore, the expectation is that smaller companies will show smaller improvements in the segment reporting quality measures investigated, and the final hypothesis is as follows:

> **H5.** The probability of increased segment reporting quality after the adoption of IFRS 8 increases with company size.

4.2 Sample Selection and Data

My initial sample consists of all publicly listed companies in Helsinki OMX Stock Exchange. As such, the primary sample consists of a total of 122 companies. However, to be fit for the research the companies have had to apply both IAS 14R and IFRS 8 standards in their financial statements. Therefore, 7 companies from the initial sample were excluded either because they were listed after the year 2008, or because they early adopted IFRS 8 on their IPO year and therefore never applied the old standard IAS 14R.

Secondly, companies operating in the banking industry were also deleted from the initial sample. This is a common practice in segment reporting research (e.g. Prather-Kinsey & Meek 2004, Street et al. 2000), because banks have additional reporting requirements besides the IFRS, which might affect their segment reporting and therefore bias the results. In total, 3 companies were deleted from the sample in this phase.

After these eliminations I moved forward to data gathering phase. As segment reporting is very sensitive to changes in the company structure, such as acquisitions or divestitures, to properly investigate the effect the standard change had on the sample companies' reporting, these real changes need to be controlled for. Following Berger and Hann (2003), this problem is solved through hand-collecting restated 2008 segment data from the 2009 annual reports. Thus, the original 2008 data reported under IAS 14R will be compared to the restated 2008 data reported under IFRS 8, and the companies' segment reporting will be compared for the same financial year. The annual reports for the companies were collected from their websites.

Unlike IAS 14R, which required all companies to report segments based on both line-of-business (LOB) and geographic areas, under the management approach of IFRS 8 segments are reported under one classification only and in theory it is possible to organize segments in numerous different ways. However, studies have shown that most companies report their segments using the LOB classification. For example, Nichols, Street and Cereola (2012) reported that 75 % of their sample reports LOB segments, while only 19 % defined segments geographically when IFRS 8 was applied.

Therefore, to properly investigate the changes in segment reporting practices, focus on either LOB or geographic segments needs to be chosen (Berger & Hann 2003). As the majority of companies use the LOB (industry) classification, this study focuses on the changes in the line-of-business reporting. Following Berger and Hann (2003), sample companies that report only geographic segments under IFRS 8 will be regarded as single-segment LOB companies. However, additional tests will be executed where companies reporting only geographic segments under IFRS 8 are eliminated from the sample.

For companies reporting mixed segments, i.e. both geographic and LOB segments, all geographic segments belonging to the same LOB are aggregated to one segment. To illustrate this aggregation mechanism, see an example of Talentum's segment reporting under IFRS 8 below in table 3.

TABLE 3.

Segment Aggregation Mechanism

Original Data (NSEG = 4)		Aggregated Data (NSEG = 3)	
Segment Name	*Sales*	*Segment Name*	*Sales*
Publishing Finland	€ 53,10	Publishing	€ 87,50
Publishing Sweden	€ 34,40	-	
Direct Marketing	€ 5,60	Direct Marketing	€ 5,60
Other	€ 0,20	Other	€ 0,20

To further ensure that the restated segment data used only reflects the reporting changes due to the standard effect, all those observations are eliminated for which the restated data demonstrates contamination due to for example discontinued operations or changes in used accounting methods. To check for this contamination, I use an algorithm developed by Berger and Hann (2003), which compares the sum of segment revenues between the two reporting practices. When historical IAS 14R segment revenues differ from the restated IFRS 8 segment revenues by more than 1 %, the company in question is taken under further investigation to check whether the financial statements give implications on acquisitions, divestments or changes in accounting practices, which might contaminate the data.

The initial sample included 19 companies, for which the contamination algorithm exceeded the allowed amount. For these 19 companies the financial statements for both years under examined were taken under investigation. As a result, 2 companies were excluded from the final sample due to divestments made during one of the investigation years, which had an effect on the segment reporting data. After these three stages of eliminations, the final sample includes a total of 110 companies, and 220 year-observations, respectively.

This final sample also includes 8 companies that used the option to adopt IFRS 8 early. For these companies, data from the last year of IAS 14R adoption is compared to the first year of IFRS 8 adoption in the same manner as discussed before. All results will be presented for the whole sample, the early adopters and regular adopters alone, and the investigation on H4 covers whether the early adopters reacted differently to the standard change when compared to the regular adopters.

Table 4 summarizes the eliminations done to the initial sample. The list of companies included in the sample and the reason for their possible elimination can also be found in Appendix A. It also indicates the 8 early adopters included in the final sample.

TABLE 4.

Breakdown of the Sample Selection

	No of firms
Public firms listed in Helsinki OMX Stock Exchange	122
- Have always applied IFRS 8	-7
- Banks	-3
- Contamination of data due to divestments	-2
Final sample	110

4.3 Empirical Tests

4.3.1 Segment Reporting Quality

To test whether the impact of IFRS 8 to the sample companies' segment reporting was significant, the results under IAS 14R and IFRS 8 have to be compared with either a parametric t-test or a non-parametric Wilcoxon signed-ranks test. Therefore, before conducting any tests on the variables explained below, they will first be analyzed with Kolmogorov-Smirnov and Shapiro-Wilk normality tests. If the tests results indicate that the variables are normally distributed, a t-test will be used. If the results show the opposite, a non-parametric test will be utilized.

Regarding hypotheses H1 and H2, one of the tests mentioned above will be executed to measure whether the increases/decreases in reported segment information are statistically significant, according to the normality test results. The descriptive statistics aim to highlight the number of companies reporting a certain number of segments under both reporting regimes, and also give information on what was the change in the number of reported segments and segment line items. The variables in use are the following:

NSEG	=	the number of segments
ΔNSEG	=	the change in the number of segments
NSLI	=	the number of segment line items
ΔNSLI	=	the change in the number of segment line items

Following the investigation of these descriptive statistics, I will use Berger and Hann's (2003) disaggregation and cross-segment transfer measures to examine more thoroughly the quality effect of IFRS 8. Specifically, the issues investigated are the changes in the level of segment disaggregation, i.e. the number of segments reported compared to how many segments the companies should report, and changes in the level of information conveyed about intra-segment transfers. The two measures to investigate H3a are the following:

DISAGG = the natural log of $\frac{the\ number\ of\ segments}{the\ number\ of\ business\ activities}$, (1)
where the no of business activities is measured as the no of different two-digit SIC codes the firm operates in during the segment report year

HERF = the Herfindal index based on revenues, calculated as:

$$\frac{\sum_{i=1}^{n} S_i^2}{\left(\sum_{i=1}^{n} S_i\right)^2}, \qquad (2)$$

where n = no of segments, and S_i = segment *i*'s sales

DISAGG demonstrates the number of reported segments in relation to the number of business activities the company is engaged in. The higher the value of DISAGG, the higher is the level of segment disaggregation. Instead, HERF is a revenue-based Herfindahl index, which besides taking into account the number of segments reported also captures the size of the reported segments. Companies that report only a single segment receive HERF value of 1, and the lower the value of HERF, the higher is the reported level of diversification across segments. (Berger & Hann 2003.) The significance of the difference between IAS 14R and IFRS 8 results will again be tested with a t-test or a non-parametric test.

The cross-segment transfer measures also include two measures developed by Berger and Hann (2003):

NLSEG = the no of segments with losses

$$\text{TRANSFER} = \text{Max}\left[\frac{Sum\ of\ segment\ Excess\ CAPX - Firm\ Excess\ CAPX}{Market\ Value\ of\ Equity}, 0\right] \text{ x } 100, \quad (3)$$

where:

Excess CAPX = Max $[CAPX - (OPS + DEP), 0]$

CAPX = capital expenditure

OPS = operating profits

DEP = depreciation expense

NLSEG demonstrates the number of loss segments. It can be used to capture cross-segment transfers, because in a diversified company segments that are making losses can survive for longer, as they can be subsidized by other segments and they do not necessarily have to fund their own losses. The higher the value of NLSEG, the more information is conveyed about intra-segment transfers. (Berger & Hann 2003.)

TRANSFER on the other hand is based on the idea that if a segment’s own free cash flow is not enough for its investments, some of its investment expenses are covered by the other segments, excess operating cash flow from prior years and external capital. The measure uses capital expenditure as a proxy for investment expense and operating profit and depreciation as a proxy for free cash flow. The firm level excess capital expenditure in the model controls for the possibility to fund a segment's investments with prior year cash flows and external financing. Thus, when the nominator of the equation is positive, segments have received transfers of funds from the other segments. The higher the value of TRANSFER, the more information again is conveyed about cross-segment transfers. (Berger & Hann 2003.) The significance of the difference between IAS 14 and IFRS 8 results will at the end be tested with a t-test or a non-parametric Wilcoxon signed-ranks-test.

As IFRS 8 does not explicitly require for any other item disclosure than the segment profit, it is possible that not all sample companies report information needed for the calculation of HERF and TRANSFER variables. These companies will therefore be excluded from the investigation of these measures. Regarding the TRANSFER variable, I will follow Berger and Hann (2003), who assumed the level of segment depreciation as zero when segment depreciation data was not reported. The researchers argued that it was likely that in these cases the amount of segment depreciation was insignificant. Therefore, all companies reporting capital expenditure per segment are eligible for the investigation of the TRANSFER variable. However, a sensitivity test will be executed which excludes those companies that did not report segment depreciation data.

4.3.2 Sensitivity Analysis

As discussed earlier, under IAS 14R companies reported both LOB and geographic segments. Under IFRS 8 however, companies report segments only in one way. Therefore, when a company chooses to report geographic segments under IFRS 8, the previously existing LOB information disappears, therefore decreasing the amount of segment information. As explained, this is why the companies reporting only geographic segments are considered to be single-segment LOB companies in this study. This first part of the tests regarding variables NSEG, DISAGG, HERF, NLSEG and TRANSFER therefore captures the overall information loss or gain on LOB segments.

As a second part, these variables will be investigated with only those companies that continued to report LOB segments under IFRS 8. This is done to capture the reporting changes of LOB-reporting companies, thus revealing the magnitude of the change for LOB segments from IAS 14R to IFRS 8.

4.3.3 The Early Adoption Effect

As discussed, regarding the tests for all the hypotheses explained above, results will be presented for the whole sample, and also individually for the early adopter and the regular adopter sample. To test the validity of hypothesis H4, an independent samples t-test or a non-parametric Mann-Whitney-U test will be executed according to the normality test results. This tests the significance of the difference between the occurred reporting changes for the two groups.

4.3.4 The Size Effect

To examine whether size has affected the changes occurred in the segment reporting practices, Pearson or Spearman rank correlations between size measures and the above explained segment reporting quality measures will be calculated. If the normality tests on the variables indicate that the variables are normally distributed, Pearson rank correlation will be executed, and vice versa.

To limit the estimation error related to the chosen measure of company size, a number of different size measures will be applied, including total assets, total sales, and market capitalization. These measures were chosen because of their wide usage in previous literature. For example Lang and Lundholm (1993) use market capitalization as a proxy for company size, whereas Harris (1998) and Ettredge, Kwon, Smith and Zarowin (2005) use total sales. Nichols and Street (2007) and Aitken, Hooper and Pickering (1997) on the other hand provide examples of the use of total assets as a size proxy.

As discussed previously, reporting quality should be increasing with company size (e.g Lang & Lundholm 1993, Aitken et al. 1997, Ettredge et al. 2005). As such, the correlations between the size measures and the segment reporting measures should be positive, except for the HERF variable, where a smaller value indicates higher-quality reporting. However, the most interesting part of the investigation is, whether the variables measuring the reporting change between the two reporting practices also indicate that larger companies have improved their segment reporting quality more than smaller ones. Also in this case the correlation coefficients should be positive for all other change variables except for ΔHERF. Table 5 summarizes the expected signs of the correlation coefficients between the specific variables.

TABLE 5.

Expected Signs of the Correlations Coefficients

	Market Value	Total Assets	Total Sales
IAS 14R			
NSEG	+	+	+
NSLI	+	+	+
DISAGG	+	+	+
HERF	-	-	-
NLSEG	+	+	+
TRANSFER	+	+	+
IFRS 8			
NSEG	+	+	+
NSLI	+	+	+
DISAGG	+	+	+
HERF	-	-	-
NLSEG	+	+	+
TRANSFER	+	+	+
ΔNSEG	+	+	+
ΔNSLI	+	+	+
ΔDISAGG	+	+	+
ΔHERF	-	-	-
ΔNLSEG	+	+	+
ΔTRANSFER	+	+	+

5 RESULTS

5.1 Descriptive Statistics on the Impact of IFRS 8

TABLE 6.

Distribution of Single Segment and Multisegment Firms Under IAS 14 and IFRS 8

Panel A: Whole sample

	IFRS 8		
	Single Segment	Multisegment	Total No. of Obs
IAS 14R			
Single Segment	32 (91.43%) *88.89%*	3 (8.57%) *4.05%*	35 (100%) *31.82%*
Multisegment	4 (5.33%) *11.11%*	71 (94.67%) *95.95%*	75 (100%) *68.18%*
Total No. of Obs	36 (32.73%) *100 %*	74 (67.27%) *100 %*	110

Panel B: Early adopters

	IFRS 8		
	Single Segment	Multisegment	Total No. of Obs
IAS 14R			
Single Segment	0 (0%) *0 %*	0 (0%) *0 %*	0 (0%) *0 %*
Multisegment	0 (0%) *0 %*	8 (100%) *100%*	8 (100%) *100%*
Total No. of Obs	0 (0%) *0 %*	8 (100%) *100%*	8

This first set of analyses presents descriptive evidence on the effects that IFRS 8 had on the sample companies' segment disclosures, particularly the number of segments reported. Table 6 provides the number of companies reporting single or multiple segments under both IAS 14R and IFRS 8. The table is divided into two panels, panel A representing the whole sample and panel B the early adopters.

As seen from the table, the standard change to IFRS 8 did not increase the number of multisegment companies in Finland, and the effect of the standard seems very mild as only 7 companies in total changed from one group to the other. This result is unexpected based on the results obtained in the United States with SFAS No. 131, and also on first results on the effect of IFRS 8 in for example the U.K. or among the largest European companies (Crawford et al. 2012, Nichols et al. 2012). Therefore, the hypothesis H1b is not supported.

In fact, the number of multisegment companies decreases by one in total, and alarmingly, 4 companies that report multiple segments under IAS 14R actually turn into single LOB-segment companies under IFRS 8. For the majority of the sample however it seems that the standard change did not result in any changes. This is also a very much contrary result compared to the huge change in the United States, where the new management approach was found to have affected a large number of companies (Berger & Hann 2003, Hermann & Thomas 2000).

Table 7 further breaks down the change in the number of reported segments. Panel A presents the distribution of the number of reported segments for the investigation year, and panel B shows the distribution of the magnitude of the reporting change among the companies. Again, it is clear that few companies have changed their reporting, as the number of companies reporting a specific number of segments has remained fairly constant. The only notable increase is in the amount of companies reporting 3 segments, which rises from 21 to 27, due to decreases in the amount of companies reporting 2 or 4 segments.

TABLE 7.

Number of Reported Segments and Reporting Change in the Number of Segments

Panel A: Number of reported segments: IAS 14R vs. IFRS 8

	IAS 14R				IFRS 8			
No. of Segments	Frequency	Percent	Cumulative Frequency	Cumulative Percent	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	35	31,8 %	35	31,8 %	36	32,7 %	36	32,7 %
2	26	23,6 %	61	55,5 %	22	20,0 %	58	52,7 %
3	21	19,1 %	82	74,5 %	27	24,5 %	85	77,3 %
4	14	12,7 %	96	87,3 %	11	10,0 %	96	87,3 %
5	8	7,3 %	104	94,5 %	8	7,3 %	104	94,5 %
6	4	3,6 %	108	98,2 %	3	2,7 %	107	97,3 %
7	2	1,8 %	110	100,0 %	2	1,8 %	109	99,1 %
-/-	-	-	-	-	-	-	-	-
14	0	0,0 %	110	100,0 %	1	0,9 %	110	100,0 %

Panel B: Reporting changes

	Whole sample				Early adopters			
Change in the No. of Segments	Frequency	Percent	Cumulative Frequency	Cumulative Percent	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-5	1	0,9 %	1	0,9 %	0	0,0 %	0	0,0 %
-4	0	0,0 %	1	0,9 %	0	0,0 %	0	0,0 %
-3	2	1,8 %	3	2,7 %	1	12,5 %	1	12,5 %
-2	1	0,9 %	4	3,6 %	0	0,0 %	1	12,5 %
-1	14	12,7 %	18	16,4 %	1	12,5 %	2	25,0 %
0	73	66,4 %	91	82,7 %	0	0,0 %	2	25,0 %
1	11	10,0 %	102	92,7 %	3	37,5 %	5	62,5 %
2	6	5,5 %	108	98,2 %	3	37,5 %	8	100,0 %
3	1	0,9 %	109	99,1 %	0	0,0 %	8	100,0 %
-/-	-	-	-	-	-	-	-	-
8	1	0,9 %	110	100,0 %	0	0,0 %	8	100,0 %

Panel B further supports this conclusion. In a great majority of 66 % of the sample no reporting changes in the number of segments occurred, which means that only one third made changes to their reporting. A little more than 16 % (18 companies) of the sample reduced the number of segments reported, whereas 17 % (19 companies) increased the number of segments. Mostly the changes are of one segment to one direction or the other, but there are two outliers, as one sample company, Tieto, reduced the number of segments reported by five and another one, Panostaja Group, increased it by eight.

Nevertheless, panel B provides the first insight on that the group of early adopters in the sample differs from the group of companies that adopted IFRS 8 when it became mandatory. For this group, IFRS 8 resulted in changes for all of the sample companies, 25 % (2 companies) of them decreasing the number of segments and 75 % (6 companies) increasing it. These results can be considered similar to earlier research on IFRS 8, which showed an average increase in the amount of segments reported (Crawford et al. 2012, Nichols et al. 2012). Also, the results indicate that there might be differences in the way IFRS 8 affected the reporting of early adopters when compared to the regular adopters.

The next set of analyses provides similar information as presented above on the number of segments on the changes that occurred in the number of segment line items reported. Table 8, panel A presents the number of companies reporting a specific number of segment line items under both reporting regimes. Panel B presents the distribution of the magnitude of the reporting change. The single segment companies are included, and can be seen on the first row of panel A.

These results again confirm that IFRS 8 did not encourage companies to make significant changes to their reporting. The distribution of the number of segment line items reported stays fairly similar, only shifting somewhat downwards in the beginning, as more companies are reporting fewer items per segment. For instance, under IAS 14R 40 % (44 companies) of the sample report 5 items or less, whereas the corresponding figure is 48 % (53 companies) for IFRS 8.

TABLE 8.

Number of Reported Segment Line Items and Reporting Change in the Number of Line Items

Panel A: Number of reported segment line items: IAS 14R vs. IFRS 8

No. of Line Items	IAS 14R Frequency	IAS 14R Percent	IAS 14R Cumulative Frequency	IAS 14R Cumulative Percent	IFRS 8 Frequency	IFRS 8 Percent	IFRS 8 Cumulative Frequency	IFRS 8 Cumulative Percent
0	35	31,8 %	35	31,8 %	36	32,7 %	36	32,7 %
1	0	0,0 %	35	31,8 %	4	3,6 %	40	36,4 %
2	1	0,9 %	36	32,7 %	0	0,0 %	40	36,4 %
3	8	7,3 %	44	40,0 %	3	2,7 %	43	39,1 %
4	0	0,0 %	44	40,0 %	2	1,8 %	45	40,9 %
5	0	0,0 %	44	40,0 %	8	7,3 %	53	48,2 %
6	9	8,2 %	53	48,2 %	4	3,6 %	57	51,8 %
7	7	6,4 %	60	54,5 %	7	6,4 %	64	58,2 %
8	10	9,1 %	70	63,6 %	6	5,5 %	70	63,6 %
9	11	10,0 %	81	73,6 %	10	9,1 %	80	72,7 %
10	5	4,5 %	86	78,2 %	7	6,4 %	87	79,1 %
11	9	8,2 %	95	86,4 %	8	7,3 %	95	86,4 %
12	6	5,5 %	101	91,8 %	3	2,7 %	98	89,1 %
13	2	1,8 %	103	93,6 %	2	1,8 %	100	90,9 %
14	2	1,8 %	105	95,5 %	2	1,8 %	102	92,7 %
15	1	0,9 %	106	96,4 %	3	2,7 %	105	95,5 %
16	0	0,0 %	106	96,4 %	0	0,0 %	105	95,5 %
17	1	0,9 %	107	97,3 %	1	0,9 %	106	96,4 %
18	0	0,0 %	107	97,3 %	0	0,0 %	106	96,4 %
19	2	1,8 %	109	99,1 %	2	1,8 %	108	98,2 %
20	0	0,0 %	109	99,1 %	0	0,0 %	108	98,2 %
21	1	0,9 %	110	100,0 %	2	1,8 %	110	100,0 %

TABLE 8.

Number of Reported Segment Line Items and Reporting Change in the Number of Line Items

Panel B: Reporting changes

Change in the No. of Line Items	Whole sample				Early adopters			
	Frequency	Percent	Cumulative Frequency	Cumulative Percent	Frequency	Percent	Cumulative Frequency	Cumulative Percent
-9	1	0,9 %	1	0,9 %	0	0,0 %	0	0,0 %
-8	1	0,9 %	2	1,8 %	0	0,0 %	0	0,0 %
-7	1	0,9 %	3	2,7 %	0	0,0 %	0	0,0 %
-6	0	0,0 %	3	2,7 %	0	0,0 %	0	0,0 %
-5	0	0,0 %	3	2,7 %	0	0,0 %	0	0,0 %
-4	3	2,7 %	6	5,5 %	0	0,0 %	0	0,0 %
-3	3	2,7 %	9	8,2 %	0	0,0 %	0	0,0 %
-2	9	8,2 %	18	16,4 %	1	12,5 %	1	12,5 %
-1	7	6,4 %	25	22,7 %	0	0,0 %	1	12,5 %
0	65	59,1 %	90	81,8 %	3	37,5 %	4	50,0 %
1	9	8,2 %	99	90,0 %	1	12,5 %	5	62,5 %
2	2	1,8 %	101	91,8 %	0	0,0 %	5	62,5 %
3	4	3,6 %	105	95,5 %	1	12,5 %	6	75,0 %
4	1	0,9 %	106	96,4 %	1	12,5 %	7	87,5 %
5	2	1,8 %	108	98,2 %	0	0,0 %	7	87,5 %
6	0	0,0 %	108	98,2 %	0	0,0 %	7	87,5 %
7	0	0,0 %	108	98,2 %	0	0,0 %	7	87,5 %
8	0	0,0 %	108	98,2 %	0	0,0 %	7	87,5 %
9	1	0,9 %	109	99,1 %	1	12,5 %	8	100,0 %
10	1	0,9 %	110	100,0 %	0	0,0 %	8	100,0 %

Panel B provides similar evidence, confirming that for most companies (59 %) the amount of segment line items reported remains constant, and that there are slightly more companies decreasing (23 %, 25 companies) the number of items than there are companies increasing it (18 %, 20 companies). Contrary to the changes occurred in the number of reported segments, not all early adopters have changed the number of segment line items reported. However, in their case the majority of the non-zero-change sample increase the amount of line items reported, contrary to the regular adopters, as only 12,5 % (1 company) decrease the amount reported and 50 % (4 companies) increase it. This again indicates a difference in the way the early adopters and regular adopters reacted to the new standard.

Table 9 provides more detailed information on specific line items reported by the multisegment companies included in the sample. The items are organized in the table according to the disclosure requirements of IFRS 8. The bracketed IAS 14R indicates that the item in question was specifically required to be disclosed when reporting LOB segments as a primary segment. If LOB segments were reported as a secondary segments, IAS 14R required the disclosure of segment sales, assets and capital expenditure, so in theory only these items must have a 100 % disclosure level under IAS 14R. For IFRS 8, this is true for the profitability measure.

As can be seen from the table, the only item that reaches the 100 % disclosure level is the segment sales, and this is true for both standards. Under IAS 14R, also segment assets, segment liabilities, segment profitability measure, depreciation and capital expenditure reach over 80 % disclosure levels. As expected, sales, segment assets and capital expenditure have the highest disclosure levels, but not all companies have fulfilled the requirements of IAS 14R, as the disclosure levels of capital expenditure and segment assets do not reach 100 %. Under IFRS 8 only segment assets, profitability measure and depreciation reach the 80 % disclosure level, indicating a decrease in the level of items disclosed, as predicted by hypothesis H2a. In a similar manner, the results on IFRS 8 indicate non-compliance with the standard, as only 92 % of the sample include the segment profitability measure in their reporting.

TABLE 9.

Number of Multisegment Firms Disclosing Specific Segment Line Items

Item disclosed	IAS 14R		IFRS 8	
	No. of Firms Disclosing	Percentage of Firms *n* = 75*a*	No. of Firms Disclosing	Percentage of Firms *n* = 74*b*
Items required by IAS 14R and IFRS 8				
Profitability measure	67	89,3 %	68	91,9 %
Profit/loss items required by IFRS 8 if certain conditions met c				
Revenue from external customers (*IAS 14R*)	75	100,0 %	74	100,0 %
Revenue from other segments (*IAS 14R*)	47	62,7 %	48	64,9 %
Interest revenue	0	0,0 %	2	2,7 %
Interest expense	4	5,3 %	6	8,1 %
Depreciation/Amortization (*IAS 14R*)	62	82,7 %	63	85,1 %
Equity method income (*IAS 14R*)	28	37,3 %	23	31,1 %
Income tax expense/benefit	1	1,3 %	1	1,4 %
Other significant non-cash expenses (e.g. impairment) (*IAS 14R*)	30	40,0 %	27	36,5 %
Balance sheet information required by IFRS 8 if certain conditions met d				
Segment assets (*IAS 14R*)	74	98,7 %	65	87,8 %
Segment liabilities (*IAS 14R*)	64	85,3 %	53	71,6 %
Equity method investment (*IAS 14R*)	29	38,7 %	30	40,5 %
Capital expenditure (*IAS 14R*)	71	94,7 %	59	79,7 %
Voluntary disclosures				
Additional income statement detail	6	8,0 %	6	8,1 %
Additional balance sheet detail	11	14,7 %	9	12,2 %
Cash flow information	4	5,3 %	5	6,8 %
Non-recurring items	8	10,7 %	12	16,2 %
Goodwill	7	9,3 %	7	9,5 %
Employees	19	25,3 %	19	25,7 %
Orders/Order book	3	4,0 %	5	6,8 %
Others *e*	15	20,0 %	20	27,0 %

a 110 - 35 single segment IAS 14R firms.

b 110 - 36 single segment IFRS 8 firms.

c Profit/loss information is required under IFRS 8 if it is included in the profitability measure reviewed by chief operating decision maker, or otherwise regularly provided to the chief operating decision maker, even if not included in that profitability measure.

d Balance sheet information is required under IFRS 8 if it is included in the measure of segment assets reviewed by chief operating decision maker, or otherwise regularly provided to the chief operating decision maker, even if not included in that measure of segment assets.

e Including capital employed, various profitability ratios, operating margin, working capital.

In general, the disclosure levels of the line items stay fairly constant. However, there are some notable changes. As expected by the hypothesis H2a, it does not seem that IFRS 8 increased the willingness to disclose more segment line items. In fact, the only items that post increased disclosure by more than one company are interest revenue and expense, non-recurring items, orders/order book and other items, which include for instance profitability ratios such as return on assets or the amount of working capital per segment. From these items the increases in the disclosure of interest revenue and expense are logical, because they are mentioned by IFRS 8 as possible items to disclose but were not required by IAS 14R. In none of the items however the increase exceeds 5 companies.

When looked at the other side of the story, the news are more alarming. There are in total 6 items, for which the disclosure level dropped by more than one company, including equity method income, non-cash-expenses, additional balance sheet detail, segment assets, segment liabilities and capital expenditure. In addition, the decreases in the last three line items mentioned are of a different magnitude than any of the increases mentioned earlier. The disclosure level of segment assets drops from almost 99 % (74 companies) to lower than 88 % (65 companies). The corresponding figures are even larger for segment liabilities, for which the disclosure level decreases from 85 % (64 companies) to only 71 % (53 companies). The biggest drop is experienced in the disclosure level of capital expenditure, which decreases by 12 companies, from 95 % to a little below 80 %. These results are similar to the ones that were documented by Nichols, Street and Cereola (2012).

Table 10 presents more detailed data on the different profitability measures disclosed for the reported segments, and thus provides information concerning hypothesis H2b. Panel A provides information on the level of disclosure of the different measures, and panel B compares the amount of companies reporting more than one profitability measure per segment under the two reporting regimes. The most frequently reported profitability measure is the operating profit, for which the disclosure level is around 90 % under both IAS 14R and IFRS 8.

TABLE 10.

Disclosure of Segment Profitability Measure

Panel A: Number of reported segment profitability measures

	IAS 14R		IFRS 8	
	No. of Firms Disclosing	Percentage of Firms $n = 75a$	No. of Firms Disclosing	Percentage of Firms $n = 74b$
Operating profit	67	89,3 %	68	91,9 %
Net income	5	6,7 %	4	5,4 %
Comparable operating profit	0	0,0 %	1	1,4 %
EBITDA	0	0,0 %	3	4,1 %
EBITA	3	4,0 %	3	4,1 %
EBT	0	0,0 %	1	1,4 %

Panel B: Number of firms reporting multiple segment profitability measures

	IAS 14R		IFRS 8	
	No. of Firms Disclosing	Percentage of Firms $n = 75a$	No. of Firms Disclosing	Percentage of Firms $n = 74b$
None	8	10,7 %	6	8,1 %
1 profitability measure	57	76,0 %	56	75,7 %
2 profitability measures	10	13,3 %	12	16,2 %

Contrary to the expectations of hypothesis H2b, and the results documented by Nichols, Street and Cereola (2012), it does not seem that IFRS 8 encouraged Finnish companies to disclose more than one profitability item per segment. There is a slight increase in the number of companies reporting for example EBITDA (earnings before interest, tax, depreciation and amortization), and the number of companies disclosing 2 profitability measures rises by two. These results are however mild compared to the previous ones, where the amount of companies disclosing multiple profitability measures rose from 18 % to 25 % (Nichols et al. 2012). All in all, according to the descriptive statistics IFRS 8 did not have a material impact on the segment reporting of Finnish listed companies.

5.2 Univariate Analysis on the Impact of IFRS 8

The second set of analyses provides the results concerning the validity of hypotheses from H1 to H3. Before executing any of the tests, all the test variables were tested for normality using the Kolmogorov-Smirnova and Shapiro-Wilk tests. The test results showed that none of the variables followed the normal plot, therefore indicating that non-parametric tests should be used when evaluating the significance of the segment reporting change. Exact results of the tests can be found in Appendix B.

Table 11 presents the first set of univariate analyses, showing results for hypotheses H1 and H3. Panel A contains the results for the whole sample; panel B for the early adopters and panel C only includes the regular adopters. As expected by the descriptive results, the differences between the reporting under IAS 14R and IFRS 8 are not great. Under IAS 14R Finnish companies reported on average 2.58 segments, and this rose a little to 2.65 on average under IFRS 8. A non-parametric z-test reveals this is not statistically significant, thus rejecting H1a. This result is contrary to the results obtained by Nichols, Street and Cereola (2012) with a sample of the largest European companies and Crawford, Extance, Helliar and Powell (2012) with a U.K. sample.

The results on the measures of the level of segment disaggregation and the level of information conveyed about cross-segment transfers further confirm that IFRS 8 did not increase the information content or the quality of segment reporting in Finland. None of the changes occurred due to IFRS 8 are found to be statistically significant, the means on the TRANSFER variable even showing some lost information on the cross-segment transfers. This is in line with the fact that the disclosure of capital expenditure dropped notably under IFRS 8, as seen in table 8. The significance of the loss of information on TRANSFER increases slightly after a robustness test that drops those companies that did not report the depreciation for their segments (see Appendix C). However, the loss of information is still found to be insignificant. Therefore hypotheses H3a and H3b are rejected.

However, it has to be noted that the Finnish companies' reporting on average seems quite extensive already under IAS 14R, at least according to the DISAGG variable. The average DISAGG of 0.57 means that on average Finnish companies reported 57 % more segments than the number of different two-digit SIC codes would imply. This can be

TABLE 11.

Univariate Analysis of the Reporting Changes in the Disaggregation and Cross-Segment Transfer Measures

Panel A: Whole sample

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
Disaggregation					
NSEG	2.58	2.65	0.07	0.567	110
			(-0.573)		
DISAGG	0.57	0.57	0.00	0.880	110
			(-0.151)		
HERF	0.67	0.68	0.01	0.368	110
			(-0.900)		
Cross-segment transfer					
NLSEG	0.69	0.76	0.07	0.384	71
			(-0.870)		
TRANSFER	4.93	4.55	-0.38	0.397	65
			(-0.848)		

Panel B: Early adopters

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
Disaggregation					
NSEG	3.88	4.50	0.62	0.285	8
			(-1.069)		
DISAGG	0.84	0.98	0.14	0.326	8
			(-0.981)		
HERF	0.50	0.53	0.03	0.889	8
			(-0.140)		
Cross-segment transfer					
NLSEG	0.63	1.00	0.37	0.083*	8
			(-1.732)		
TRANSFER	1.18	0.70	-0.48	0.917	8
			(-0.105)		

Panel C: Regular adopters

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
Disaggregation					
NSEG	2.48	2.50	0.02	0.937	102
			(-0.079)		
DISAGG	0.55	0.54	-0.01	0.770	102
			(-0.293)		
HERF	0.68	0.69	0.01	0.274	102
			(-1.095)		
Cross-segment transfer					
NLSEG	0.70	0.73	0.03	0.793	63
			(-0.263)		
TRANSFER	5.46	5.09	-0.37	0.398	57
			(-0.845)		

* Significant at the 10% level (2-tailed test).

compared for instance to the results of Berger and Hann (2003), who found that after the introduction of SFAS No. 131 the average DISAGG value rose to 0.07.

As panel C shows, the results are not affected when the early adopters are excluded from the sample, but rather confirm even more that IFRS 8 did not result in significant changes to companies' reporting. For the regular adopters, the mean number of segments reported only changed from 2.48 to 2.50. Nevertheless, when comparing the results of the early adopters (panel B) to the regular ones, clear differences can be seen. On average, the early adopters report 2 whole segments more than the regular adopters, their average after IFRS 8 rising to 4.50 segments. However, not even for the early adopters is this increase found to be significant.

In fact, the only change found to be marginally significant at p=0.083 is NLSEG for early adopters, indicating that some previously hidden loss-making segments were revealed after the introduction of IFRS 8. It is also worth noticing that the average increase on the number of loss segments reported is almost 59 % for the early adopters while the average increase in all segments reported is only 16 %. These results are in line with previous research that found that the management approach forced companies to reveal also low-performing segments (Berger & Hann 2003, Berger & Hann 2007).

All in all, nor from the regular sample or the early adopters it can be said that IFRS 8 significantly improved the disaggregation or cross-segment transfer metrics, therefore implying that the overall level of LOB segment reporting stayed fairly similar. However, it seems that the early adopters altered their reporting considerably more than the regular adopters, and also more significantly moved their segment reporting to the direction IASB would have hoped for.

Table 12 shows the second set of univariate analysis for only those companies that continued to report LOB segments under IFRS 8. 90 out of the total 110 companies investigated (82 %) reported LOB segments, thus confirming previous results that it is the most common segment reporting format.

TABLE 12.

Univariate Analysis of the Reporting Changes for LOB-reporting Firms

Panel A: Whole sample

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
Disaggregation					
NSEG	2.72	2.92	0.20	0.114	90
			(-1.579)		
DISAGG	0.63	0.68	0.05	0.185	90
			(-1.324)		
HERF	0.63	0.63	0.00	0.866	90
			(-0.169)		
Cross-segment transfer					
NLSEG	0.78	0.81	0.03	0.384	69
			(-0.870)		
TRANSFER	4.90	4.68	-0.22	0.761	63
			(-0.761)		

Panel B: Early adopters

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
Disaggregation					
NSEG	3.71	4.86	1.15	0.046**	7
			(-1.994)		
DISAGG	0.88	1.18	0.30	0.063*	7
			(-1.863)		
HERF	0.48	0.46	-0.02	0.612	7
			(-0.507)		
Cross-segment transfer					
NLSEG	0.71	1.14	0.43	0.083*	7
			(-1.732)		
TRANSFER	0.55	0.71	0.16	0.500	7
			(-0.674)		

Panel C: Regular adopters

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
Disaggregation					
NSEG	2.64	2.76	0.12	0.508	83
			(-0.662)		
DISAGG	0.61	0.65	0.04	0.543	83
			(-0.608)		
HERF	0.65	0.64	-0.01	0.863	83
			(-0.173)		
Cross-segment transfer					
NLSEG	0.78	0.77	-0.01	0.793	62
			(-0.263)		
TRANSFER	5.44	5.18	-0.26	0.586	56
			(-0.544)		

** Significant at the 5% level (2-tailed test).

* Significant at the 10% level (2-tailed test).

As can be expected, when only LOB-reporting companies are included, the results are more positive. The average number of segments reported rose from 2.72 to 2.92, and also DISAGG and NLSEG variables show improved disclosure levels. However, again these changes are not statistically significant, and do not confirm H1 or H3. Indeed, when combining the results of the first set of tests it can be stated that the overall LOB-reporting level stayed constant, and even the companies choosing to report LOB segments did not change their reporting significantly.

However, the results on the 7 early adopters reporting LOB segments under IFRS 8 are more interesting. In this case I can find a statistically significant change in the number of reported segments, which rose from 3.71 to 4.86 on average. This result confirms the anticipation that those companies that knew they had to do changes to their reporting chose to do it before the standard became mandatory. The changes on DISAGG and NLSEG are also found to be marginally significant.

Table 13 presents similar univariate analysis on the reported segment line items. As expected by the second hypothesis, the average line items reported fells from 8.64 to 8.49 under IFRS 8 in the whole sample. This decrease is not found to be significant, unlike in the previous research (Nichols et al. 2012), therefore not confirming H2a.

However, panels B and C show that the reaction to IFRS 8 regarding segment line items was completely different for the early adopters and regular adopters. For early adopters the number of line items actually increased from 10.25 to 12.13, whereas the decrease of the line items is deepened when only regular adopters are taken into consideration, the average falling from 8.46 to 8.07. This decrease is a lot more significant than with the whole sample, but H2a still remains unconfirmed.

Table 13 also shows results regarding the reporting of specific segment line items. Only those changes are presented in the table, which were found to be statistically significant. The results regarding all the segment line items investigated and presented in table 8 can be found in Appendix D.

TABLE 13.

Univariate Analysis of the Reporting Changes in the Segment Line Items by Multisegment Firms

Panel A: Whole sample

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
NSLI	8.64	8.49	-0.15	0.433	78
			(-0.785)		
Specific line items (only significant differences shown)					
Segment assets	0.95	0.83	-0.12	0.013**	78
			(-2.496)		
Segment liabilities	0.82	0.68	-0.14	0.012**	78
			(-2.524)		
Capital expenditure	0.91	0.76	-0.15	0.001***	78
			(-3.464)		
Equity method income	0.36	0.29	-0.07	0.096*	78
			(-1.667)		
Others	0.19	0.26	0.07	0.059*	78
			(-1.890)		

Panel B: Early adopters

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
NSLI	10.25	12.13	1.88	0.138	8
			(-1.483)		
Specific line items (only significant differences shown)					
Revenue from other segments	0.63	1.00	0.37	0.083*	8
			(-1.732)		

Panel C: Regular adopters

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
NSLI	8.46	8.07	-0.39	0.141	70
			(-1.471)		
Specific line items (only significant differences shown)					
Segment assets	0.94	0.81	-0.13	0.013**	70
			(-2.496)		
Segment liabilities	0.83	0.67	-0.16	0.008***	70
			(-2.668)		
Capital expenditure	0.90	0.73	-0.17	0.001***	70
			(-3.464)		
Equity method income	0.33	0.24	-0.09	0.034**	70
			(-2.121)		

*** Significant at the 1% level (2-tailed test).

** Significant at the 5% level (2-tailed test).

* Significant at the 10% level (2-tailed test).

As expected in the discussion concerning the results of table 8, panel C of table 12 shows that significant declines are found in the reporting of segment assets, segment liabilities, capital expenditure, and equity method income. Apart from the decline in the disclosure of segment assets, these same findings were also reported by Nichols, Street and Cereola (2012). It is curious to note that while Finnish companies continue to report equity method investment by segment, they do allocate the result of these investments to the segments. However, this might be a symptom of IFRS 8, as it requires the segments to be reported as they are reported to the management, and management may not make a lot of the segment's profitability if it includes the results on an investment that is outside that segment's ordinary business.

As table 13 does not present the results on segment profitability measures, it can also be stated that H2b is discarded and that in Finland IFRS 8 did not increase the number of companies reporting more than single item of segment profitability. Indeed, the most important findings are the declines on the disclosure of segment assets, liabilities and capital expenditure. Especially capital expenditure is important when assessing the segment's future inside the company, as it gives information on which segment the company is investing in and therefore focusing at the moment.

Table 13 also again confirms that early adopters differ from the other sample. As discussed, their average number of line items reported actually increased, and none of the line items investigated experienced a significant decline in the reporting frequency. Results concerning the possible early adoption effect are therefore presented next.

5.3 The Existence of the Early Adoption Effect

Table 14 provides the results on the Mann-Whitney-U –test performed to investigate whether the reporting changes occurred in the regular adopter and early adopter sample differ significantly. As the mean changes for the investigation variables show, apart from HERF and TRANSFER variable the early adopters changed their reporting to a more favorable direction after IFRS 8. For example, the increase in the number of segments reported for the regular sample was only 0.02 segments, whereas for the early adopters it was 0.63 segments. In segment line items the changes occurred are even completely opposite, as regular adopters decreased the number of line items reported while early adopters increased them.

TABLE 14.

An Analysis of the Differences in the Reporting Changes between Regular and Early Adopters of IFRS 8

Means	Regular Adopters	Early Adopters	Difference Between Regular and Early Adopters *(Z-stat)*	Mann-Whitney U Test p-value
ΔNSEG	0.02	0.63	0.61 *(-2.434)*	0.015**
ΔNSLI	-0.26	1.88	2.14 *(-2.037)*	0.042**
ΔDISAGG	-0.01	0.14	0.15 *(-2.313)*	0.021**
ΔHERF	0.01	0.03	0.02 *(-0.923)*	0.356
ΔNLSEG	0.01	0.38	0.37 *(-2.450)*	0.014**
ΔTRANSFER	-0.37	-0.48	-0.11 *(-1.072)*	0.284

** Significant at the 5% level (2-tailed test).

The test results show that the reporting changes are significantly different in the changes occurred in the number of segments reported, number of line items reported, the level of segment disaggregation and the number of loss segments reported. These results confirm the anticipated early adoption effect of hypothesis H4 and suggest that early adopters started to use the standard earlier on because they knew they had to start disclosing more information about their segments.

5.4 The Existence of the Size Effect

Table 15 presents the Spearman rank correlations between the different size measures, segment reporting quality variables and the reporting change variables according to the normality test results. The results confirm expectations on the higher level of segmental disclosure by larger companies, as the number of segments reported, number of segment line items reported and the level of segment disaggregation measured by both DISAGG and HERF under both reporting regimes are found to be increasing with size. However, there is no evidence that larger Finnish companies would report more about cross-segment transfers, as the correlations between NLSEG and TRANSFER and the size variables are not significant.

Regarding the reporting change that occurred after the change to IFRS 8, it seems that larger Finnish companies did not improve their segment reporting significantly more than smaller ones. The correlation coefficients are not of significant importance. The results therefore dictate that company size measured by market value, total assets or total sales did not significantly affect the way IFRS 8 was responded to. Therefore H5 is rejected, and it can be stated that regardless of the company size, Finnish companies reacted to IFRS 8 in a fairly similar manner.

TABLE 15.

Correlation Matrix for the Size and Reporting Quality Variables

	Spearman		
	Market Value	Total Assets	Total Sales
IAS 14R			
NSEG	0.481***	0.529***	0.557***
NSLI	0.421***	0.460***	0.467***
DISAGG	0.394***	0.465***	0.473***
HERF	-0.489***	-0.544***	-0.572***
NLSEG	-0.104	-0.024	0.000
TRANSFER	-0.211*	-0.109	0.085
IFRS 8			
NSEG	0.447***	0.510***	0.539***
NSLI	0.470***	0.526***	0.563***
DISAGG	0.332***	0.420***	0.426***
HERF	-0.441***	-0.508***	-0.535***
NLSEG	0.020	0.095	0.142
TRANSFER	-0.120	0.001	-0.013
ΔNSEG	0.036	0.060	0.046
ΔNSLI	0.048	0.057	0.113
ΔDISAGG	0.033	0.055	0.044
ΔHERF	0.039	0.057	0.071
ΔNLSEG	0.103	0.103	0.115
ΔTRANSFER	0.041	0.087	0.076

*** Significant at the 1% level (2-tailed test).

** Significant at the 5% level (2-tailed test).

6 CONCLUSIONS, LIMITATIONS AND FURTHER RESEARCH

6.1 Summary of the Results

6.1.1 Segment Reporting Changes

Overall, the results of the study show that IFRS 8 did not have a major impact to segment reporting practices in Finland. Out of the 110 sample companies examined, 66 % did not change the amount of segments reported and also a great majority of 59 % left the amount of segment line items untouched. According to the results it also seems that companies making changes to their reporting balanced each other out, thus leaving the effect of the whole standard to LOB segments to be almost non-existent.

Regarding the number of segments, there were only slightly more companies increasing the amount of segments reported (19 companies) than there were companies decreasing it (18 companies). These figures are reversed for the segment line items, where 25 companies decreased the amount of items reported and only 20 companies increased it. Also against expectations, IFRS 8 did not succeed in increasing the amount of multisegment companies among the sample. In fact, the amount of single segment LOB companies increased by one from 35 under IAS 14R to 36 under IFRS 8.

The univariate analysis conducted for the segment reporting variables using the Wilcoxon signed-ranks test further confirmed the mild effect of IFRS 8. The variables used to measure segment disaggregation level and the amount of information conveyed about cross-segment transfers both showed that no significant change after the adoption of the management approach had occurred. The mean of variable NSEG measuring the number of segments reported showed a small increase from 2.58 reported segments to 2.65. Thus, at least on average IFRS 8 did not result in loss of information. Also DISAGG and HERF variables measuring the level of segment disaggregation basically showed a non-zero change.

For the cross-segment transfer variables NLSEG and TRANSFER the changes occurred were a bit more notable. The amount of loss segments reported rose from an average of 0.69 segments under IAS 14R to 0.76 segments under IFRS 8. It is important to note that while the number of segments reported on average only rose by 2,7 %, the amount of loss-making segments reported on average rose by 10,1 %. This implies that even though the increase in the number of loss segments was not found to be statistically significant, there are implications that companies were more likely to hide loss-making segments than high-performing segments under the old segment reporting standard.

Despite NLSEG showing an increased amount of information on cross-segment transfers, TRANSFER variable decreased from 4.93 under IAS 14R to 4.55 on average under IFRS 8, indicating lost information on cross-segment transfers. The decrease was not found to be of statistical significance. However, further investigation conducted on the disclosure of segment line items confirmed that lost information on cross-segment transfers was mainly due to companies withholding the disclosure of capital expenditure per segment.

As expected by the descriptive statistics, the amount of segment line items dropped on average from 8.64 items per segment to 8.49 items per segment after IFRS 8, but this decrease was insignificant. However, some specific line items showed statistically very significant decreases in their disclosure levels. These items were the segment assets, segment liabilities, capital expenditure and equity method income. All of these items were specifically required to be disclosed under IAS 14R, but IFRS 8 did not anymore include these disclosure requirements.

All in all, the statistical analysis conducted shows that the reporting changes IFRS 8 generated were not found to be statistically significant, apart from the decreases in the disclosure of segment assets, segment liabilities, capital expenditure and equity method income per segment. Thus, hypotheses H1, H2 and H3 are rejected, and in general the information level and quality of LOB segment reporting stayed constant among Finnish companies even after the standard change.

6.1.2 Early Adopters vs. Regular Adopters

The research sample included both companies that had adopted IFRS 8 early and companies that adopted it when its use became mandatory. Hypothesis H4 assumed that the reporting changes for the early adopters would be greater than for the regular adopters. The Mann-Whitney-U-test conducted to test the differences between these two sub-samples confirmed that while for the regular adopters IFRS 8 had resulted in few changes, the changes were more notable and also more favorable among the early adopters, confirming H4. In particular, when investigating only LOB-reporting early adopters, it was found that the number of segments reported increased significantly. Previously under IAS 14R the early adopters reported on average 3.71 segments, but after IFRS 8 this number was increased to 4.86. This is clear evidence that IFRS 8 for at least some companies increased the segment reporting transparency.

Also overall the effect of IFRS 8 was greater for early adopters. While the increase in NSEG for the regular adopters was only 0.02 segments, for the early adopters the corresponding figure was 0.63 segments, thus showing the greater impact of IFRS 8 to their reporting. Regarding segment line items, changes in NSLI variable showed even opposite reactions, as regular adopters decreased the amount of line items reported by 0.26 line items, while early adopters increased them by 1.88. Also the changes in DISAGG and NLSEG variables showed statistically significant differences between these two groups, with the early adopters improving their segment disaggregation level and disclosing more loss segments. However, both for the early adopters and regular adopters the TRANSFER variable showed decreased amount of information on cross-segment transfers.

6.1.3 Reporting Changes and Company Size

The final issue investigated in the study aimed to compare whether company size had affected the reporting changes done after IFRS 8. Correlation analysis was used to analyze this issue, and company size was measured with three different size variables, total sales, total assets and market capitalization. As expected, the correlation analysis showed that both under IAS 14R and IFRS 8 larger companies reported more segments, more line items and had more disaggregated segment information as measured by DISAGG and HERF. However, there was no evidence that larger companies would report more information about cross-segment transfers, as correlations between NLSEG and TRANSFER and the size variables were not found to be significant.

Contrary to the expectations of hypothesis H5, the reporting changes were not found to be significantly correlated with company size. In fact, the evidence suggests that regardless of company size, Finnish companies reacted to the new segment reporting standard in a fairly similar manner.

6.2 The Results in Light of Previous Research

The research results obtained in this study partly confirm the findings of earlier research, but also partly contradict them. Most importantly, the amount of segments reported did not increase in Finnish companies' reporting after IFRS 8, unlike for instance in the United Kingdom (Crawford et al. 2012) and among the largest European companies (Nichols et al. 2012). This result is also contradictory to the effect that the management approach had in the United States (Berger & Hann 2003, Hermann & Thomas 2000, Street et al. 2000).

These findings are interesting, because this study incorporated a sample that included smaller companies than the previous IFRS 8 studies had investigated. Therefore the results show that the effect of IFRS 8 was not universal but depends on many factors, and that partly the criticism placed on IFRS 8 about harming smaller companies commercially could be true. The findings may confirm the notion reported by for instance Kvaal and Nobes (2012) that despite accounting practice harmonization, the reporting practices differ from country to country. Alternative explanation is that the differing empirical findings in current study are driven by the smaller firms included in the sample compared to prior studies.

In addition, the results show that IFRS 8 did not succeed in increasing the level of segment disaggregation or the amount of information about cross-segment transfers in Finland. These results were unexpected, because in the United States the management approach enforced with SFAS No. 131 increased the level of segment disaggregation, more information about cross-segment transfers was released and thus segment reporting information became more value-relevant (Berger & Hann 2003, Chen &

Zhang 2003). In light of these previous results, it can be concluded that the quality effect of IFRS 8 to Finnish companies' reporting was low.

Nonetheless, some of the results also confirmed the findings of earlier research. As previously reported by Crafword, Extance, Helliar and Power (2012) and Nichols, Street and Cereola (2012), the amount of reported segment line items decreased. Even if this decrease was not found to be significant, some specific line items showed very significantly lowered disclosure levels. As dictated by previous research (Nichols et al. 2012), these items included segment assets, segment liabilities, capital expenditure and equity method income. However, contrary to earlier research Finnish companies did not significantly increase the amount of profitability measures disclosed per each segment.

Also in line with previous research (Berger & Hann 2003), Finnish companies introduced more new loss-making segments than new profitable segments after the adoption of IFRS 8. This implies that under the old standard it was more probable that the management chose to aggregate loss-making segments into other segments than that they would have withheld from reporting high-performing segments, in accordance with the agency theory. With the introduction of SFAS No. 131 in the United States, similar results were reported by Berger and Hann (2007).

Finally, the results added to previous research on companies' strategic choices regarding financial disclosure and the size effect to the disclosure levels. According to earlier research that companies pose strategic behavior towards their disclosure choices (Hayes & Lundholm 1996), the results show that those companies that knew they had to make larger changes to their reporting chose to do it rather as early as possible than only when the change became mandatory. Regarding the size effect it was found that larger companies reported higher quality segment information under both reporting regimes, confirming earlier findings (Lang & Lundholm 1993, Aitken et al. 1997, Ettredge et al. 2005, Nichols & Street 2007). All the same, the size was not found to have an effect on how the companies reacted to the standard change.

6.3 Practical Implications

The results of this research also provide some practical implications for the consideration of for instance FIN-FSA and also IASB, which has finalized the PIR process on IFRS 8, but continues to address some of the most problematic issues also highlighted by this research (IASB 2013b). The results are also of interest to the investors investing in Finnish companies, as segment reporting is key to their decision-making (Yoo & Semenenko 2012).

This study shows that despite the hopes that FIN-FSA (2007) placed on the standard change, segment reporting remained very similar as before and only 3 of the previous single-segment companies turned to multisegment companies under IFRS 8. As FIN-FSA found that the level of segment disclosures was unsatisfactory even under IAS 14R, they are bound to find it as that still after the new approach.

There are a number of reasons that might have affected these results. For instance, IASB (2013b) acknowledges that some companies might already have aligned their segments according to the internal reporting under IAS 14R, and for this reason the effect of IFRS 8 was not as notable as expected. I find this explanation to suit the situation, as I found that in many annual reports investigated companies reported that IFRS 8 resulted in no change in their reporting because the segments had already been reported according to the management approach under IAS 14R.

Nevertheless, there are other possible explanations. For example ESMA (2011) highlighted the difficulties that companies have in defining the CODM, and IASB (2013b) has raised this issue under further investigation. As Finnish companies are also relatively small in size, and small companies were expected to be at a disadvantage with the new standard, I find it possible that companies have taken advantage of the loose definition of the term CODM, and raised the level of reporting so high, that the segment reporting reported outside is not as disaggregated as it should be. This interpretation is in line with the findings that auditors have reported increased tension with their clients while agreeing what to include in the annual reports (IASB 2013a).

Another possibility is that Finnish companies have aggregated segments that should not be aggregated by hiding behind the aggregation criteria that for example ESMA (2011) has criticized. This criteria state that segments containing ‘similar economic characteristics’ can be aggregated into one segment. There have been claims that companies do not specifically enough disclose what aggregation criteria they have used, and I find this to be the case with the Finnish companies investigated. Thus, it is possible that these companies have decided to understand the aggregation criteria at its most relaxed form. IASB (2013b) is also further researching this issue.

The final great practical impact that I find these results show is the fact that IFRS 8 has somewhat made investment analysis more difficult. This is mainly because the level of disclosure for capital expenditure per segment dropped significantly. This is grave news because capital expenditure gives information on what segment the company is currently focusing on. It also has to be noted that the comparability between companies has decreased, as there is more reporting variability than there was with IAS 14R, as one company discloses one item but the other one does not.

6.4 Evaluation of the Results

This study has a number of limitations affecting the generalizability of the obtained results. Firstly, as the research objective was to investigate the reporting changes in Finland, my sample only included Finnish listed companies. As financial reporting practices differ from country to country (Kvaal & Nobes 2012), caution must be applied when these results are generalized to any other economies.

Secondly, the study only investigated the reporting changes in the line-of-business segment reporting. Thus, as geographic segments were ruled out of the scope of the study, the results cannot be considered to give a full view on what was the effect of IFRS 8 to Finnish companies’ segment reporting. However, as most companies report their segments according to the LOB classification (e.g. Nichols et al. 2012), this limitation can be considered reasonable. In addition, the robustness of the main findings was examined and confirmed using a reduced sample reporting their segments according to the LOB classification.

Finally, there exists a possibility of measurement error in the data utilized, because I hand-collected it from the annual reports of the sample companies. Moreover, it is possible that not all companies whose segment reporting data contained contamination due to acquisitions or divestments were eliminated. In total 19 companies were found to have possible contamination using Berger and Hann's algorithm (2003), but only two of these were excluded. If these companies' annual reports did not report on acquisitions, divestments, they were still included in the final sample. Nevertheless, the probability for companies to leave structure changes out of the annual reports can be considered low, and so also the limitation as narrow.

6.5 Further Research

There are many fruitful options for further research as showed by this study. As a first option it could be interesting to examine whether the changes in geographical segment reporting in Finland were similar compared to the results obtained in this study. Another option could be to investigate whether a similar early adoption effect can be found with a larger sample of regular and early adopters from different economies. Moreover, the vast research done on the effects of SFAS No. 131 provide wide possibilities for further research. As noted by the IASB (2013a), much more information is still needed on how IFRS 8 affected the analysts' information environment, e.g. whether their estimation errors were reduced, and also on the effect it had on the stock market, e.g. whether the cost of equity capital decreased.

Besides these quantitative research options, the subject can also be extended to qualitative research. For instance, the reasons behind choosing to adopt the standard early could be an interesting subject to investigate. Other possible research problems include examining the changes the standard change had on auditors' work and also the companies' view on whether filling the requirements of the standard puts the into a competitively harmful position.

7 REFERENCES

AIMR. (1993) *Financial reporting in the 1990 and beyond*. In P. H. Knutson (Ed.), Charlottesville: AIMR.

Aitken, M., Hooper, C. & Pickering, J. (1997) "Determinants of voluntary disclosure of segment information: A re-examination of the role of diversification strategy". *Accounting and Finance,* 37, 89-109.

Albrecht, W. D. & Chipalkatti, N. (1998) "New segment reporting." *CPA Journal*, May98, Vol. 68, Issue 5, 46-52.

Behn, B. K., Nichols, N.B. & Street, D. L. (2002) "The Predictive Ability of Geographic Segment Disclosures by U.S. Companies: SFAS no. 131 vs. SFAS no. 14." *Journal of International Accounting Research*, 1, 31-44.

Bens, D. A., Berger, P. G. & Monahan, S. J. (2011) "Discretionary Disclosure in Financial Reporting: An Examination Comparing Internal Firm Data to Externally Reported Segment Data." *The Accounting Review,* Vol. 86, No.2, 417-449.

Berger, P. G. & Hann, R. (2003) "The Impact of SFAS No. 131 on Information and Monitoring." *Journal of Accounting Research*, Vol. 41, No. 2, 163-223.

Berger, P. G. & Hann, R. (2007) "Segment Profitability and the Proprietary and Agency Costs of Disclosure." *The Accounting Review*, Vol. 82, No. 4, 869-906.

Botosan, C. A. & Stanford, M. (2005) "Managers' Motives to Withhold Segment Disclosures and the Effect of SFAS No. 131 on Analysts' Information Environment." *The Accounting Review,* Vol. 80, No. 3, 751-771.

Chen, P. F. & Zhang, G. (2003) Heterogeneous Investment Opportunities in Multiple-segment Firms and the Incremental Value Relevance of Segment Accounting Data. *The Accounting Review,* Vol. 78, No. 2, 397-428.

Crawford, L., Extance, H., Helliar, C. & Power, D. (2012) *Operating Segments: The Usefulness of IFRS 8*. Edinburgh: ICAS.

Epstein, B. J. & Jermakowicz, E. K. (2008) *IFRS 2008: Interpretation and Application of International Financial Reporting Standards*. John Wiley & Sons Inc, Hoboken, New Jersey, USA.

Epstein, M. J. & Palepu, K. G. (1999) "What Financial Analysts Want." *Strategic Finance*, 80(10), 48-52.

ESMA. (2011) *European Securities and Markets Authority. Review of European Enforcers on the Implementation of IFRS 8 – Operating Segments*. Available at: http://www.esma.europa.eu/system/files/2011_372.pdf. Accessed 21st of February 2013.

Ettredge, M., Kwon, S. Y. & Smith, D. (2002a) "Competitive Harm and Companies' Positions on SFAS No. 131." *Journal of Accounting, Auditing and Finance*, Vol. 17, No. 2, 93-109.

Ettredge, M., Kwon, S. Y. & Smith, D. (2002b) "Security Market Effects Associated with SFAS No. 131: Reported Business Segments." *Review of Quantitative Finance and Accounting*, 18, 323-344.

Ettredge, M., Kwon, S. Y., Smith, D. B. & Stone, M. S. (2006) "The effect of SFAS No. 131 on the cross-segment variability of profits reported by multiple segment firms." *Review of Accounting Studies*, 17, 91-117.

Ettredge, M., Kwon, S. Y., Smith, D. B. & Zarowin, P. A. (2005) "The Impact of SFAS No. 131 Business Segment Data on the Market's Ability to Anticipate Future Earnings." *The Accounting Review*, 80(3), 773-804.

European Parliament. (2007) *European Parliament Resolution P6 TA (2007) 0526, International accounting standards (IFRS 8).* November 14. Available at: http://www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=P6-TA-2007-0526&language=EN. Accessed 22nd of July 2013.

FASB. (1997) *Statement of Financial Accounting Standards No. 131, disclosures about segments of an enterprise and related information*. Norwalk: FASB.

FIN-FSA. (2007) *Selvitys listayhtiöiden vuoden 2006 IFRS-tilinpäätöksistä*. Available at: http://www.finanssivalvonta.fi/fi/Listayhtiolle/IFRS/Julkaisut/Documents/Selvitys_listayhtioiden_vuoden_2006_IFRS_tilinpaatoksista.pdf. Accessed 22nd of February 2013.

Haaramo, V. & Räty, P. (2009) *Kansainvälinen tilinpäätöskäytäntö. IFRS-raportointi*. WSOY, Juva.

Harris, M. S. (1998) "The Association between Competition and Managers' Business Segment Reporting Decisions." *Journal of Accounting Research*, Vol. 36, No. 1, 111-128.

Hayes, R. M. & Lundholm, R. (1996) "Segment Reporting to the Capital Market in the Presence of a Competitor." *Journal of Accounting Research*, Vol. 34, No. 2, 261-279.

Hermann, D. & Thomas, W. B. (2000) "An Analysis of Segment Disclosures under SFAS No. 131 and SFAS No. 14." *Accounting Horizons*, Vol. 14, No. 3, 287-302.

Hope, O-K., Kang, T., Thomas, W. B. & Vasvari, F. (2008) "Pricing and Mispricing Effects of SFAS 131." *Journal of Business Finance & Accounting*, 35(3), 281-306.

Hope, O-K., Thomas, W. B. & Winterbotham, G. (2006) "The Impact of Non-Disclosure of Geographic Segment Earnings on Earnings Predictability." *Journal of Accounting, Auditing & Finance*, 323-346.

Hussain, S. (2007). "Any other suggestions?" *Accountancy*, Vol. 140, Issue 1367, 82-83.

IASB. (2006a) *Basis for conclusions on exposure draft ED 8, Operating Segments*. London: IFRS Foundation.

IASB. (2006b) *International Financial Reporting Standard 8, Operating Segments*. London: IFRS Foundation.

IASB. (2013a) *Post-Implementation Review of IFRS 8 Operating Segments*. *Agenda papers.* Available at: http://www.ifrs.org/Current-Projects/IASB-Projects/PIR/IFRS-8/summaries/Pages/IASB-Jan-13.aspx. Accessed 21st of February 2013.

IASB. (2013b) *Report and Feedback Statement. Post-implementation Review: IFRS 8 Operating Segments*. http://www.ifrs.org/Current-Projects/IASB-Projects/PIR/IFRS-8/Documents/PIR-IFRS-8-Operatihg-Segments-July-2013.pdf. Accessed 24th of July 2013.

IASC. (1997) *IAS 14R, Segment reporting*. London: IASC.

Katselas, D., Birt, J. & Kang, X. H. (2011) "International Firm Lobbying and ED 8 Operating Segments." *Australian Accounting Review*, No. 57, Vol. 21, Issue 2, 154-166.

Kvaal, E. & Nobes, C. (2012) "IFRS Policy Changes and the Continuation of National Patterns of IFRS Practice". *European Accounting Review*, Vol. 21, No. 2, 343-371.

Lang, M. & Lundholm, R. (1993) "Cross-Sectional Determinants of Analyst Ratings of Corporate Disclosures." *Journal of Accounting Research*, Vol. 31, No.2, 246-271.

Maines, L. A., McDaniel, L.S. & Harris, M. S. (1997) "Implications of Proposed Segment Reporting Standards for Financial Analysts' Investment Judgments." *Journal of Accounting Research*, Vol. 35, Supplement, 1-24.

McConnell, P. & Pacter, P. (1995). "IASC and FASB proposals would enhance segment reporting." *CPA Journal*, Vol. 65, Issue 8, 32-36.

Nichols, N. B. & Street, D. L. (2007) "The relationship between competition and business segment reporting decisions under the management approach of IAS 14 Revised." *Journal of International Accounting, Auditing & Taxation*, 16, 51-68.

Nichols, N. B., Street, D. L. & Cereola, S. J. (2012) "An analysis of the impact of adopting IFRS 8 on the segment disclosures of European blue chip companies." *Journal of International Accounting, Auditing and Taxation*, 21, 79-105.

Nichols, N. B., Street, D. L. & Gray, S. J. (2000) "Geographic Segment Disclosures in the United States: Reporting Practices Enter a New Era." *Journal of International Accounting, Auditing & Taxation*, 9(1), 59-82.

Nirkkonen, J. (2006) "Segmenttien määrittely IAS 14-standardin ja tutkimusten valossa". *Tilintarkastus* 2/2006, 68-72.

Nobes, C. & Parker, R. (2008) *Comparative International Accounting*. Prentice Hall, Harlow, England.

Park, J. C. (2011) "The effect of SFAS 131 on the stock market's ability to predict industry-wide and firm-specific components of future earnings." *Accounting and Finance*, 51, 575-607.

Prather-Kinsey, J. & Meek, G. K. (2004) "The Effect of Revised IAS 14 on Segment Reporting by IAS Companies." *European Accounting Review*, Vol. 13, No. 2, 213-234.

QCA. (2006) CL:70 Comments on the Exposure Draft ED 8 Operating Segments. Available at: http://www.ifrs.org/Current-Projects/IASB-Projects/Segment-Reporting/Exposure-Draft-and-Comment-Letters/Comment-Letters/Documents/16_227_CL70.pdf. Accessed 24th of July 2013.

Sjöman, H. (2012) *Segmenttiraportoinnin laatu: IFRS 8 vaikutukset Suomen pörssiyrityksissä*. Master's thesis, Aalto University School of Economics, no. 12885.

Street, D. L., Nichols, N.B. & Gray, S. J. (2000) "Segment Disclosures under SFAS No. 131: Has Business Segment Reporting Improved?" *Accounting Horizons*, Vol. 14, No. 3, 259-285.

Street, D. L. & Nichols, N.B. (2002) “LOB and geographic segment disclosures: an analysis of the impact of IAS 14 Revised.” *Journal of International Accounting, Auditing & Taxation*, 11, 91-113.

Troberg, P. (2007) *IFRS and U.S. GAAP. A Finnish Perspective.* Talentum Media Oy.

Troberg, P., Kinnunen J., & Seppänen H. J. (2010) “What drives cross-segment diversity in returns and risks? Evidence from Japanese and U.S. firms.” *The International Journal of Accounting*, 45, 44-76.

Tsakumis, G. T., Doupnik, T. S. & Seese, L. P. (2006) “Competitive harm and geographic area disclosure under SFAS 131.” *Journal of International Accounting, Auditing, and Taxation*, 15, 32-47.

Wang, Q., Ettredge, M., Huang, Y. & Sun, L. (2011) “Strategic revelation of differences in segment earnings growth.” *Journal of Accounting & Public Policy*, 30, 383-392.

Yoo, J. & Semenenko, I. (2012) “Segment Information Disclosure and the Cost of Equity Capital.” *Journal of Accounting – Business & Management*, Vol. 19, No. 1, 103-123.

APPENDICES

APPENDIX A

Companies Included in the Initial Sample

Company	Early adoption	Deleted for
Affecto Oyj	No	
Ahlström Oyj	No	
Aktia Oyj	No	Always IFRS 8
Alma Media Oyj	No	
Amer Sports Oyj	No	
Apetit Oyj	No	
Aspo Oyj	No	
Aspocomp Group Oyj	No	
Atria Oyj	No	
Basware Oyj	No	
Biohit Oyj	No	
Biotie Therapies Corp.	No	
CapMan Oyj	No	
Cargotec Oyj	No	
Cencorp Oyj	No	
Citycon Oyj	No	
Componenta Oyj	No	
Comptel Oyj	No	
Cramo Oyj	No	
Digia Oyj	No	
Dovre Group Oyj	No	
Efore Oyj	No	
Elecster Oyj	No	
Elektrobit Oyj	No	
Elisa Oyj	No	
Endomines	No	Always IFRS 8
EQ Oyj	No	
Etteplan Oyj	No	
Exel Composites Oyj	No	Divestments
F-Secure Oyj	No	
Finnair Oyj	No	
Finnlines Oyj	No	
Fiskars Oyj	Yes	
Fortum Oyj	Yes	
Geosentric Oyj	No	
Glaston Oyj	No	
HKScan Oyj	No	
Honkarakenne Oyj	No	
Huhtamäki Oyj	Yes	
Ilkka-Yhtymä Oyj	No	
Incap Oyj	No	
Innofactor Oyj	No	

Ixonos Oyj	No	
Kemira Oyj	No	
Keskisuomalainen Oyj	No	
Kesko Oyj	No	
Kesla Oyj	No	
KONE Oyj	No	
Konecranes Oyj	No	
Lassila & Tikanoja Oyj	No	
Lemminkäinen Oyj	No	
Marimekko Oyj	No	
Martela Oyj	No	
Metso Oyj	No	
Metsä Board Oyj	No	
Neo Industrial Oyj	No	
Neste Oil Oyj	Yes	
Nokia Oyj	Yes	
Nokian Renkaat Oyj	No	
Nordea Bank Plc	No	Bank
Norvestia Oyj	No	
Nurminen Logistics Oyj	No	
Okmetic Oyj	No	
Olvi Oyj	No	
Oral Hammaslääkärit Oyj	No	
Oriola-KD Oyj	No	
Orion Oyj	No	
Outokumpu Oyj	No	
Outotec Oyj	No	
Panostaja Oyj	No	
PKC Group Oyj	No	
Pohjois-Karjalan Kirjapaino Oyj	No	
Pohjola Bank Plc	Yes	Bank
Ponsse Oyj	No	
Pöyry Oyj	No	
QPR Software Oyj	No	
Raisio Oyj	No	Divestments
Ramirent Oyj	No	
Rapala VMC Oyj	No	
Rautaruukki Oyj	No	
Raute Oyj	No	
Revenio Group Oyj	No	
Ruukki Group Oyj	No	
Saga Furs Oyj	No	
Sampo Oyj	No	
Sanoma Oyj	No	
Scanfil Oyj	No	Always IFRS 8
Sievi Capital Oyj	No	
Solteq Oyj	No	
Sotkamo Silver	No	Always IFRS 8
Sponda Oyj	No	

SRV Yhtiöt Oyj	Yes	Always IFRS 8
SSH Communications Security Oyj	No	
SSK Suomen Säästäjien Kiinteistöt Oyj	No	
Stockmann Oyj Abp	No	
Stonesoft Oyj	No	
Stora Enso Oyj	No	
Suominen Oyj	No	
Takoma Oyj	Yes	Always IFRS 8
Talentum Oyj	No	
Talvivaaran Kaivososakeyhtiö Oyj	No	
Technopolis Oyj	No	
Tecnotree Oyj	No	
Teleste Oyj	No	
TeliaSonera Plc	Yes	
Tieto Oyj	No	
Tiimari Oyj	Yes	
Tikkurila Oyj	No	Always IFRS 8
Trainer's House Oyj	No	
Tulikivi Oyj	No	
Turvatiimi Oyj	No	
UPM-Kymmene Oyj	Yes	
Uponor Oyj	No	
Vaahto Group Oyj	No	
Vacon Oyj	No	
Vaisala Oyj	No	
Viking Line Abp	No	
Wulff-Yhtiöt Oyj	No	
Wärtsilä Oyj	No	
YIT Oyj	No	
Yleiselektroniikka Oyj	No	
Ålandsbanken Abp	No	Bank

APPENDIX B

Tests of Normality for Test Variables

	Kolmogorov-Smirnov		Shapiro-Wilk		
	Statistic	Sig.	Statistic	Sig.	No. of Obs
IAS 14R					
NSEG	0.201	0.000***	0.871	0.000***	110
NSLI	0.107	0.027**	0.962	0.021**	78
DISAGG	0.189	0.000***	0.934	0.000***	110
HERF	0.213	0.000***	0.867	0.000***	110
NLSEG	0.309	0.000***	0.746	0.000***	75
TRANSFER	0.339	0.000***	0.439	0.000***	65
IFRS 8					
NSEG	0.197	0.000***	0.768	0.000***	110
NSLI	0.105	0.032**	0.967	0.039**	78
DISAGG	0.150	0.000***	0.953	0.000***	110
HERF	0.220	0.000***	0.864	0.000***	110
NLSEG	0.269	0.000***	0.719	0.000***	74
TRANSFER	0.351	0.000***	0.413	0.000***	65

*** Significant at the 1% level (2-tailed test).

** Significant at the 5% level (2-tailed test).

APPENDIX C

Univariate Analysis on TRANSFER with Companies Reporting Depreciation Per Segment

Panel A: Whole sample

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
TRANSFER	5.17	4.64	-0.53 *(-1.229)*	0.219	62

Panel B: Early adopters

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
TRANSFER	1.34	0.80	-0.54 *(-0.105)*	0.917	7

Panel C: Regular adopters

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
TRANSFER	5.66	5.13	-0.53 *(-1.285)*	0.199	55

APPENDIX D

The Non-Significant Reporting Changes in the Segment Line Items

Panel A: Whole sample

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
Profit/loss items					
Profitability measure	0.86	0.87	0.01 *(-0.378)*	0.705	78
Revenue from external customers	0.96	0.95	-0.01 *(-0.378)*	0.705	78
Revenue from other segments	0.60	0.62	0.02 *(-0.277)*	0.782	78
Interest revenue	0.00	0.03	0.03 *(-1.414)*	0.157	78
Interest expense	0.05	0.08	0.03 *(-1.414)*	0.157	78
Depreciation/Amortization	0.79	0.81	0.02 *(-0.378)*	0.705	78
Income tax expense/benefit	0.01	0.01	0.00 *(0.000)*	1.000	78
Other significant non-cash expenses	0.38	0.35	-0.03 *(-1.342)*	0.180	78
Balance sheet information					
Equity method investment	0.37	0.38	0.01 *(-0.333)*	0.739	78
Voluntary disclosures					
Additional income statement detail	0.08	0.08	0.00 *(0.000)*	1.000	78
Additional balance sheet detail	0.14	0.12	-0.02 *(-1.414)*	0.157	78
Cash flow information	0.05	0.06	0.01 *(-0.577)*	0.564	78
Non-recurring items	0.10	0.15	0.05 *(-1.633)*	0.102	78
Goodwill	0.09	0.09	0.00 *(0.000)*	1.000	78
Employees	0.24	0.24	0.00 *(0.000)*	1.000	78
Orders/Order book	0.04	0.06	0.02 *(-1.414)*	0.157	78

APPENDIX D

The Non-Significant Reporting Changes in the Segment Line Items

Panel B: Early adopters

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
Profit/loss items					
Profitability measure	0.88	1.00	0.12 *(-1.000)*	0.317	8
Revenue from external customers	1.00	1.00	0.00 *(0.000)*	1.000	8
Interest revenue	0.00	0.00	0.00 *(0.000)*	1.000	8
Interest expense	0.00	0.00	0.00 *(0.000)*	1.000	8
Depreciation/Amortization	0.75	1.00	0.25 *(-1.414)*	0.157	8
Equity method income	0.63	0.75	0.12 *(0.000)*	1.000	78
Income tax expense/benefit	0.00	0.00	0.00 *(0.000)*	1.000	8
Other significant non-cash expenses	0.75	0.63	-0.12 *(-1.000)*	0.317	8
Balance sheet information					
Segment assets	1.00	1.00	0.00 *(0.000)*	1.000	8
Segment liabilities	0.75	0.75	0.00 *(0.000)*	1.000	8
Equity method investment	0.63	0.63	0.00 *(0.000)*	1.000	8
Capital expenditure	1.00	1.00	0.00 *(0.000)*	1.000	8
Voluntary disclosures					
Additional income statement detail	0.13	0.13	0.00 *(0.000)*	1.000	8
Additional balance sheet detail	0.25	0.25	0.00 *(0.000)*	1.000	8
Cash flow information	0.00	0.13	0.13 *(-1.000)*	0.317	8
Non-recurring items	0.38	0.63	0.25 *(-1.414)*	0.157	8
Goodwill	0.00	0.00	0.00 *(0.000)*	1.000	8
Employees	0.13	0.38	0.25 *(-1.414)*	0.157	8
Orders/Order book	0.00	0.00	0.00 *(0.000)*	1.000	8
Others	0.38	0.50	0.12 *(-1.000)*	0.317	8

APPENDIX D

The Non-Significant Reporting Changes in the Segment Line Items

Panel C: Regular adopters

Means	IAS 14R	IFRS 8	Difference Between IAS14R and IFRS 8 *(Z-stat)*	p-value	No. of Obs
Profit/loss items					
Profitability measure	0.86	0.86	0.00 *(0.000)*	1.000	70
Revenue from external customers	0.96	0.94	-0.02 *(-0.378)*	0.705	70
Revenue from other segments	0.60	0.57	-0.03 *(-0.632)*	0.527	70
Interest revenue	0.00	0.03	0.03 *(-1.414)*	0.157	70
Interest expense	0.06	0.09	0.03 *(-1.414)*	0.157	70
Depreciation/Amortization	0.80	0.79	-0.01 *(-0.447)*	0.655	70
Income tax expense/benefit	0.01	0.01	0.00 *(0.000)*	1.000	70
Other significant non-cash expenses	0.34	0.31	-0.03 *(-1.000)*	0.317	70
Balance sheet information					
Equity method investment	0.34	0.36	0.02 *(-0.378)*	0.705	70
Voluntary disclosures					
Additional income statement detail	0.07	0.07	0.00 *(0.000)*	1.000	70
Additional balance sheet detail	0.13	0.10	-0.03 *(-1.414)*	0.157	70
Cash flow information	0.06	0.06	0.00 *(0.000)*	1.000	70
Non-recurring items	0.07	0.10	0.03 *(-1.000)*	0.317	70
Goodwill	0.10	0.10	0.00 *(0.000)*	1.000	70
Employees	0.26	0.23	-0.03 *(0.816)*	0.414	70
Orders/Order book	0.04	0.07	0.03 *(-1.414)*	0.157	70
Others	0.17	0.23	0.06 *(-1.633)*	0.102	70