A fair disclosure of fair value? How IFRS 13 affects fair value disclosure quality for investment properties in Europe

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Abstract

IFRS 13 had its mandatory implementation in January 1st, 2013. The new accounting standard, which represents one step closer to the harmonization between U.S. GAAP and IFRS, aims to eliminate inconsistencies in fair value measurement and its related disclosures through the introduction of new reporting requirements, specifically for assets and liabilities with no active markets. Although these demands also encompass information concerning financial instruments, our focus laid on the disclosure changes related to the fair value of investment properties, previously regulated solely by IAS 40. As investment properties comprise the majority of assets in the real estate industry, this sector was further examined and a selection of 77 real estate companies in Europe, made to compose our sample. Through a comparative analysis of the sample companies’ annual reports for the periods immediately before and after the implementation of IFRS 13, the purpose of our descriptive-explanatory study was to investigate if IFRS 13 affects the disclosure quality for investment properties in real estate companies in Europe.

In order to answer this question, we first scrutinized the level of compliance with the new disclosure requirements brought up by the standard and then, intermediated by an adaptation of the model developed by Beretta & Bozzolan (2008), measured the disclosure quality for both periods considered. Lastly, besides comparing the scores for the different reporting years, the sample was further divided according to the legal origin of the countries the companies were registered in, as a way to examine the possible impact legal systems can have on disclosure quality.

After data collection and analysis, our findings reveal that IFRS 13 does affect the disclosure quality for investment properties in real estate companies in Europe. The overall compliance is very high while disclosure quality increased since the implementation of IFRS 13. However, significant differences regarding disclosure quality for legal origin countries exist, with Scandinavian origin real estate companies tending to outperform the others. As a way to further broaden the research related to the more extensive disclosure requirements under IFRS 13, we suggest additional studies to be undertaken where the point of view of the real estate companies’ could be explored. Moreover, it would be interesting to investigate whether the increased amount of disclosures, both in relation to quantity and quality, is relevant from an analyst’s standpoint.

Keywords:
Fair value, real estate, disclosures, quality, IAS 40, IFRS 13, compliance, investment properties, Europe
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Abbreviations

AFM: The Netherlands Authority for the Financial Markets
AICPA: American Institute of Certified Public Accountants
AIMR: Association for Investment, Management and Research
EBITDA: Earnings Before Interest Tax Depreciation and Amortization
EPRA: European Public Real Estate Association
ESMA: European Securities and Markets Authority
FASB: Financial Accounting Standards Board
FTSE: The Financial Times Stock Exchange
FV: Fair value
GAAP: Generally Accepted Accounting Principles
IAASB: International Auditing and Assurance Standards Board
IAS: International Accounting Standards
IASB: International Accounting Standards Board
IFRS: International Financial Reporting Standards
INREV: The European Association for Investors in Non-listed Real Estate Vehicles
SEC: The U.S. Securities and Exchange Commission
1. INTRODUCTION

This chapter lays out the foundation of our research. It covers the problem background, the research question, the research gap, purpose, contributions & target groups and limitations of our study. This enhances the knowledge surrounding our chosen area and it makes it possible to understand our way of reasoning for choosing this particular field.

1.1. Problem background

In a continuous effort towards the convergence of the two biggest set of accounting standards in the world, US GAAP and IFRS, the International Accounting Standards Board (IASB) released a new standard in 2011 which aimed at eliminating inconsistencies in the rules regarding fair value measurement and disclosures (IASB, 2011). The so-called IFRS 13 entitled “Fair Value Measurement”, which came into full effect in 2013, aggregates all rules and regulations concerning fair value and substituted some related paragraphs in other standards, as IAS 40 “Investment Properties” (Ernst & Young, 2011, p. 2) and IFRS 7 “Financial Instruments: disclosures” (IASB, 2011, p.6), for example.

Although IFRS 13 does not include significant changes concerning the methods of fair value measurement, it develops extensively the requirements for disclosures about measurement uncertainty (IASB, 2011, p.5). This can be seen as a big change especially in contrast to IAS 40, which only included rudimentary instructions about mandatory disclosures relative to the appraisal at fair value of investment properties (Sundgren et al., 2013, p. 26).

Concerning our research, the focal point will be the new disclosure requirements for the fair value of investment properties, which can be defined, in this context, as properties (land and/or building) held by the owner with the purpose of earning rent and/or for capital appreciation (IAS 40, p.5). Therefore, any regulatory impact on the fair value disclosures related to financial instruments will be disregarded. The reason for such a choice is that, before the implementation of IFRS 13, some studies showed a great degree of variability of disclosure extent and quality regarding investment properties in countries where IFRS is applied (e.g. Sundgren et al., 2013; Edelstein et al., 2012; Muller et al., 2011). However, previous research emphasized mostly the discussion of the appropriateness of fair value appraisals in comparison to the cost model alternative (e.g. Quagli & Avallone, 2010) or on the possible relationship between financial instruments measured at fair value and the financial crisis of 2008 (e.g. Fahnestock & Bostwick, 2011). Moreover, as there are no active markets for investment properties, the valuation process is not as straightforward as for e.g. financial instruments, therefore making this an interesting area.

Leaving aside the merits and risks associated with fair value measurements, if we focus on the changes in disclosure requirements brought up by the new standard, it seems reasonable to assume that a more detailed-oriented regulation of fair value related information would alter the amount of financial statement disclosures by companies, which comply at least partly with IFRS 13. Though the new standard might increase the amount of disclosures, an interesting aspect to investigate is if the quality of the disclosures improve thereafter. Nevertheless, although quantity is commonly used as a proxy for disclosure quality, quality itself is a broad concept that is difficult to define and measure (Beretta & Bozzolan, 2008), which, on its turn, contributes to the complexity.
and innovativeness of our research. In this context, we intend to construct our own quality measuring index, based on models previously developed in the literature, in order to investigate if the implementation of IFRS 13 affects fair value disclosure quality for investment properties.

Furthermore, as a way to better observe the effect of such regulatory change specifically on investment properties related disclosures, we chose to pay particular attention to an economic sector in which this type of property constitutes the majority of the reported assets, namely the real estate sector. In connection to our research, a company can be said to pertain to the real estate industry if it is publicly traded and derived at least 75% of its EBITDA from so-called relevant real estate activities, i.e. “(…) the ownership, trading and development of income-producing real estate” (FTSE et al., 2015, p.10). Besides, the choice of investigating the disclosure quality of companies from this particular sector can also be motivated by the economic relevance of the industry, which in 2013 contributed with €302 billion to the European economy, twice as much as both telecommunications and automotive sectors (INREV& EPRA, 2014, p. 2).

Lastly, in order to obtain a more general understanding of IFRS 13 and its implications on fair value disclosures of investment properties in real estate companies, we have decided to expand our research across borders by taking into consideration real estate firms listed in Europe. According to IFRS Foundation (2015), a total of 138 jurisdictions (countries) in the world require the application of accounting standards provided by IFRS. Of those, the majority (31%) is located in Europe, where IFRS has the force of law (IFRS Foundation, 2015). Therefore, we considered this geographic area to be homogenous enough to be analyzed as a unit but still heterogeneous enough to enrich our research with a cross-sectional variability.

1.2. Research question

From what is presented above, there is a definite shortage of research about IFRS 13 and how it has affected the mandatory disclosures and whether or not there have been any significant changes when it comes to the quality of the disclosures regarding investment properties. In this research context, we will apply the concept of quality developed by Beretta & Bozzolan (2008, p. 352), in which high quality disclosures are said to help users to take informed economic decisions and provide analysts with useful information for the preparation of more accurate and less disperse estimates. Based on this starting point, our research question is presented below:

Does IFRS 13 affect the disclosure quality for investment properties in real estate companies in Europe?

For the sake of obtaining a wider perspective through which we can become better equipped to answer our main research question, we propose the investigation of the three following sub-questions:

Sub-question 1: for real estate companies in Europe, what is the level of compliance with IFRS 13 fair value disclosure requirements for investment properties?

Sub-question 2: are there any differences in disclosure quality for investment properties in real estate companies in Europe, before and after the implementation of IFRS 13?
**Sub-question 3: are there any differences in quality between different countries in Europe in IFRS 13 related disclosures for investment properties in real estate companies?**

The first sub-question has the aim to examine how real estate companies in Europe have answered to the disclosure demands brought up by IFRS 13. In order to determine if IFRS 13 has influenced the quality of disclosures in our investigation context, we first need to scrutinize if the new disclosure rules are actually being followed by the companies in our sample. Otherwise any quality variation before and after the implementation of this standard could not be directly connected with IFRS 13.

The second sub-question, on its turn, is the most directly connected with our main research question and proposes a comparison between the quality of disclosures provided by real estate companies in Europe in the fiscal year immediately before and the one after IFRS 13 implementation. By answering this question, we can determine if there were any changes at all in disclosure quality in the first year of mandatory implementation of IFRS 13 in relation the previous period.

Finally, the third sub-question comes as a follow-up investigation to help us understand if companies from certain countries can be positively or negatively influencing the overall disclosure quality of the sample. According to IASB (2011), one of the goals with IFRS 13 is to eliminate inconsistencies concerning the disclosures connected with the fair value of investment properties, however, there are many national and firm-level factors that can also influence, for example, the amount of disclosures provided by a company. Therefore, this sub-question will allow us to examine if IFRS 13 succeeded in increasing disclosure consistency in spite of these externalities.

### 1.3. Research gap

IFRS 13 came into full effect on January 2013 and included more extensive disclosure requirements when using fair value to appraise assets and liabilities. There has been much research completed within the area of fair value measurement e.g. Dietrich et al. (2001) and Laux & Leuz (2009), however, as this standard is quite new the amount of research is extremely limited and the majority of the published information regarding IFRS 13 has been compiled by various accounting and auditing firms. Nonetheless, that material has been based mostly on speculation of what implications IFRS 13 might have. No information has been published regarding the actual effects of the new standard. In a working paper by Sundgren et al. (2013, p. 4), that highlights disclosure quality in the real estate industry, they state that their study is one of the first of its kind within this area. Though in their paper they focus their attention on the old regulations; IAS 40.

The first annual reports published using IFRS 13 are now available and therefore we will be able to build upon and develop the research previously made within this area. No prior studies about the new standard and its impact on investment properties have been made, hence we will be able to improve and provide new insights in this field. Furthermore, throughout the research compiled about disclosures and disclosure quality there is not a consensus about what quality is and how to measure it. Consequently, this makes our research quite complex and challenging. Though, in our study we will try to define quality and develop a measure for it as a step towards grasping the word “quality” better in relation to disclosures about fair value for investment properties.
1.4. **Purpose**

The purpose with this research is to investigate the impact of IFRS 13 on disclosure quality for investment properties in Europe. The new standard has been accompanied by more elaborate disclosure requirements, especially when using unobservable data as the basis for fair value measurement. The IASB stated in a report from 2011 that this standard would be able to reduce the inconsistencies that existed prior. However, though the mandatory disclosures have increased, another aspect of this have to be studied; the quality of the information provided. We intend to investigate whether there are other determinants than quantity that can determine the quality of disclosures. By developing proxies and measure quality of the disclosures related to investment properties, our aspiration is to be able to give an insight into this matter.

This study could also be of importance as new standards are developed and implemented regularly by the IASB and it should be in their interest to evaluate the results of new standards. Though there are many intended objectives as will be discussed later on, this study will focus on the compliance and quality of the information disclosed and whether IFRS 13 have contributed to enhanced or inferior disclosure quality.

The choice of investment properties came naturally to us as the real estate market is quite large in size and properties like these that are valued at fair value often use unobservable data inputs. Therefore they automatically become subject to the more extensive disclosure requirements. Consequently, it can be assumed that there should be a significant difference in the amount of disclosures and its detailed descriptions. A report from EPRA (2011, p. 4) moreover states that IFRS 13 was not developed with only investment properties in mind but instead there have been much focus on financial instruments. Having this in mind our choice of industry seems relevant and hopefully we will be able to provide a better understanding of how IFRS 13 have impacted this particular sector when it comes to disclosures and the quality of those.

Based on these considerations and on the research gap created by the aforementioned regulatory change, we propose to investigate if the changes in fair value accounting disclosures brought up by IFRS 13 increased, during its first year of implementation, the disclosure quality of financial statements, as intended by legislators. In order to achieve this goal, we intend to analyze and compare fair value disclosures before and after the implementation of the new standard.

1.5. **Contribution and target audience**

With this research we will provide an insight about how the disclosure quality has been affected by IFRS 13. It is our desire that this study will facilitate legislators and other interested parties to assess whether the new legislation actually leads to better quality or simply more clutter as a result from the more extensive disclosure requirements under IFRS 13. We also wish to contribute in giving a better insight into how real estate companies have answered to the demands of the new legislation.

The aim is to contribute in both a theoretical and practical way by keeping in mind academics as well regulators, investors and auditors. For academics we will build upon prior research that has been compiled. Much of the literature about disclosures and specifically quality of disclosures is quite old therefore we will make this topic current.
again. This is furthermore interesting as much has happened concerning accounting standards and disclosures in the past 10-15 years.

In a practical perspective we will focus on providing insights for the parties developing, utilizing and evaluating the information required under this standard; regulators, investors and auditors. As for the regulators, a study like this one could be of interest in order to examine the result of more extensive disclosure requirements and whether they have the desired effects. This study could furthermore benefit investors within the real estate industry, it could facilitate in the understanding of the information disclosed regarding fair value measurement. As investment properties often compose a major part of the assets held by real estate companies, it is crucial to understand the fair values and from where the figures originate. Furthermore, we address auditors with our research, this could facilitate their work as we will be able to map out how real estate firms disclose information regarding fair value measurements. This will highlight if and where incompliance arise and could consequently shed some light upon which areas that are in need of more attention by auditors.

1.6. Limitations

As for the limitations, time constraints do limit our research in some ways. If we would have had more time it could have been interesting to explore other industries as well, this could have made our study broader. The limited sample to one industry makes our results hard to generalize to other industries and sectors. Furthermore, in this research we will only utilize and analyze annual reports, disregarding other information that the real estate firms may distribute to internal as well as external parties. This choice originates from the fact that according to Lang & Lundholm (1993), annual reports have a more rigid structure and are less sensitive to short-term changes in incentives to disclose due to its long-term orientation, which should result in less disclosure quality volatility than press releases, for example. Moreover, we will examine the annual reports from 2013, but as they are the first annual reports published implementing IFRS 13 some firms might not have adopted the new standard completely, as there is always a transition period. Concerning our target audience we aim towards educated parties that possess prior knowledge within the areas of accounting and fair value measurement. This becomes a limitation as it will be difficult for parties without this knowledge to follow our way of reasoning. We also want to highlight that in this study we will focus our attention on investment properties that are held by the owner i.e. the real estate companies, hence disregarding investment property held under financial leases. Finally, quality is hard to measure and as there are no direct quantitative measures we will develop proxies in order to measure quality, however, this means that there will be subjectivity involved to a certain extent as we develop the proxies ourselves with some guidance from previous research.

1.7. Disposition

For this research we have made the decision to include six chapters, as can be seen below. This structure suits our particular study as it is crucial to give the reader an understanding of the area of choice, firstly the facts and then in a more elaborate way the theoretical background that this study relies upon. This will make is possible to grasp the situation surrounding fair value disclosures and the concept of quality for this specific purpose.
Chapter 1: Introduction
This chapter has laid out the foundation of our research. It has covered the problem background, the research question, the research gap, purpose, contributions & target groups and limitations of our study. This has enhanced the knowledge surrounding our chosen area and it has made it possible to understand our way of reasoning for choosing this particular field.

Chapter 2: Methodology
In this chapter we have aimed towards explaining what philosophical views and approaches that have guided us throughout this research. This have ranged from how we have seen upon the nature of reality and knowledge to the design and what strategy that have been exploited. Additionally we have provided a summary of how the different philosophical choices are connected with each other in order for the readers to have a clear picture of our choices before continuing with the theoretical framework. The chapter have been concluded with an elaborate discussion of the ethical, legal and social considerations that we have found relevant for this particular study.

Chapter 3: Theoretical framework
This chapter has discussed the pillar stones on which our research is based upon. As a starting point the accounting standards that will be our focus; IAS 40 & IFRS 13 have been quite elaborately discussed. Within this section the focus has been on explaining the greatest changes that have accompanied IFRS 13 in comparison to the old regulations as well as the intended objectives. The second part of this chapter has had as its aim to enhance the understanding of disclosures, determinants and disclosure quality, by providing a thorough discussion on these subjects. In order to connect these two parts; IFRS 13 and disclosure quality, to investment properties and real estate companies the end of each section have included a discussion of how the facts stated affect this specific industry. In comparison with the other chapters, we have decided to put more emphasis on this specific chapter, especially section 3.2., as there is a vast amount of literature in this area. The fact that there is no consensus on what disclosure quality is, is an additional reason for why it is important to have an extended discussion on this. Another section that has received special attention is the one concerning national-level factors, which have been more emphasized than firm-level factors. The motivation behind this is that these national factors have a greater role in the empirical part and are therefore important to highlight to a larger extent.

Chapter 4: Empirical study
In this chapter, relevant information for the collection and analysis of our empirical data have been provided. Firstly, the hypotheses, which have been developed to answer our main research question and sub-questions, have been presented. Secondly, an elaboration on how the sample has been determined have been provided. A major part of this chapter has, however, been devoted to explaining our complex data collection process in order to provide a better understanding of the data analysis in the coming chapter. Finally, the chapter is ended by presenting an explanation of the statistical tests that are applied in chapter five.

Chapter 5: Empirical findings and analysis
In this chapter our findings have been presented and we have used statistical tests to test the hypotheses. Firstly, the focus have been descriptive statistics where we have examined the quality scores reached and if any relationship have existed between the different
variables studied. Secondly, the hypotheses in relation to compliance, disclosure quality and quality between the four origins have been answered. This have been performed by testing for normality and significance amongst others.

Chapter 6: Conclusion
The purpose of this chapter has been to reflect upon our research and the quality of our findings. This chapter starts with a discussion on how we have ensured a high quality and afterwards, in an attempt to bring everything together, we have elaborated on our intended purpose and how that has been fulfilled. Subsequently, the findings have been summarized and we provide a thorough discussion on the contributions of this study. The chapter is concluded with some suggestions for further research.
2. METHODOLOGY

In this chapter we aim towards explaining what philosophical views and approaches that will guide us throughout this research. This will range from how we see upon the nature of reality and knowledge to the design and what strategy that will be exploited. Additionally, we will present a summary of how the different philosophical choices are connected with each other in order for the readers to have a clear picture of our choices before continuing with the theoretical framework. The chapter will be concluded with an elaborate discussion of the ethical, legal and social considerations that are relevant for this particular study.

2.1. Choice of Topic & Preconceptions

The foundation on which we based our choice of topic is our underlying interest in financial accounting. During our studies within Business Administration, we could observe firsthand the lengths to which companies go to inform the public about its operations, managerial assumptions, financial performance, etc. Many corporate annual reports nowadays surpass 100 pages and we wondered which factors could lead to such extensive disclosures at the same time that we questioned the quality of the information released. Such curiosity paired up with the controversy surrounding fair value accounting and the recent implementation of IFRS 13 lead our research towards the subject of how mandatory disclosure requirements can help to mold firms’ financial reporting efforts.

Further, much was discussed in accounting publications in the last few years about the extent to which real estate, one of the biggest economic sectors in Europe, would be impacted by this new accounting standard. Therefore, this study come as a way to investigate what changed in the corporate disclosures after the implementation of IFRS 13 within the real estate industry, presented in the annual reports of 2014 in comparison with the year before. The relevance of this topic can also be attributed to the fact that IFRS 13 is one of the first marks of the convergence process between IFRS and the US GAAP.

Another motivation for our choice of topic is that we had the willingness to conduct research within an area that was fairly new and unexplored. As disclosure quality is difficult to define and there are different ways in which quality can be measured, it makes the chosen area more complex and therefore less straightforward. We do however want to challenge ourselves and by doing this with a complicated research question we hope to gain valuable insights into the impact of IFRS 13 on disclosure quality.

Additionally, the main preconception pervading our research is that the implementation of IFRS 13 by real estate companies indeed changed/affected their disclosure policies starting from the 2013-14 reporting period. Such idea is the result of the fact that IFRS 13 became mandatory for public companies in Europe from 2013 and forwards, consequently the failure to implement the alterations predicted by the new standard could result in sanctions from market regulators, which, on its turn, could negatively affect market confidence in the punished firm. However, it is also expected that not all companies were equally diligent in applying the new rules, therefore some compliance and quality variation are also believed to be present in our results.
2.2. Our perspective

The perspective utilized in this research is mainly of the legislators trying to understand the practical effects of a new accounting standard in corporate reporting practices, in comparison to the legislation’s intended objectives. Moreover, we aim also to contribute to: the construction of knowledge within accounting research, to a more critical perception of corporate disclosure policies by specialised investors, to direct auditors’ attention to possible non-compliance areas by real estate companies and, finally, to help legislators to assess the efficacy of implemented legislation.

2.3. Research philosophy

Research philosophy relates to how we see the reality and the knowledge created within it. Saunders et al. (2012, p. 127) defines it as “the development of knowledge and the nature of that knowledge”. There are two parts that compose research philosophy; epistemology and ontology. The former referring to the knowledge that we utilize and the latter the reality and the nature of it.

2.3.1. Epistemology

According to Long et al. (2000, p. 190) epistemology refers to the foundation of knowledge and how it can be transferred to others. Within this philosophy there are two different views; interpretivism and positivism, which follow diverse ways of reasoning.

Researchers that follow the interpretivist view believe that the social sciences differ from the natural sciences (Bryman, 2012, p. 28) and therefore social phenomena cannot be treated accordingly. Bryman & Bell (2011, p. 18) discusses the importance of human beings and their influence on knowledge, where they state that within interpretivism human beings is an integral part of the reality and this signifies that it is crucial to understand them and see the reality from their point of view. Tuli (2010, p. 103) continues on the same path by stating that the objective with this view is “to understand values, beliefs and meanings of social phenomena” in order to get a deeper understanding of the reality as a whole. This position can thus be seen as quite subjective as it is dependent on individuals and the social actors in the society (Long et al., 2000, p. 190).

On the opposite side of interpretivism we find positivism that takes a different view on knowledge. Researchers having the mindset of a positivist believe that social phenomena should be examined utilizing the same methods as when studying natural sciences (Bryman & Bell, 2011, p. 15). Consequently, positivists only accept knowledge that can be observed by our senses (Bryman & Bell, 2011, p. 15; Saunders et al., 2012, p. 134; 6 & Bellamy, 2012, p. 50). In contrast to the subjective interpretivism, positivism can hence be seen as the objective view that believe that knowledge should be available to all (Long et al., 2000, p. 190) and that is only concerned with the hard observable facts (Saunders et al., 2012, p. 134). As positivism should be objective it is crucial that the research is carried out in a value-free way (Bryman & Bell, 2011, p. 15). However Saunders et al. (2012, p. 135) points out that one can argue that excluding all values is close to impossible.

After the discussion above, the positivist view can be seen as the most appropriate one for our research. This epistemological approach was chosen as we will examine information and data that is publicly available for all. Moreover, we will take an approach
that examines information from an outsider’s point of view and thus it will not be our focus to understand the actors within the real estate companies. Furthermore, the data in the annual reports that will be studied can be considered as hard data that is extremely difficult to alter.

2.3.2. Ontology

The other element of research philosophy is ontology which refers to the nature of the social reality. Long et al. (2000, p. 190) states that that there are two different views that can be taken when discussing the reality and how it is constructed; either it can be built up by strict principles that exist without the influence from social actors or it can be seen from the perspective that the individuals construct the reality. This suggesting that one approach; objectivism takes an objective view upon the social reality and the other one; constructionism takes a more subjective approach (Long et al., 2000, p. 190).

Researchers that takes an objectivist approach, believes that the reality is not a function of social actors but instead that the reality exist independent of its inhabitants (Bryman & Bell, 2011, p. 21). Saunders et al. (2012, p. 131) takes this one step further and adapts this view into an organizational setting. They suggest that organizations follow a structure that is independent of the individuals working there as well as the organizations have rules that they must obey and these are essentially the same across all organizations. Therefore it can be suggested that within this view individuals are not the focus when studying the society as it is believed that it is not in their power to influence these strict principles that the reality is built upon.

The contrasting view to objectivism is constructionism and here Bryman (2012, p. 33) argues that researchers adopting this view do not believe in pre-set principles and structures. Instead as Jonassen (1991, p. 10) reason “reality is more in the mind of the knower”. This opposite position takes into consideration the social actors in the society and mean that these individuals construct the reality (Saunders et al., 2012, p. 132). Therefore it can be suggested that this view in contrast with the previous one considers the social actors and believe that they make up the pillar stones of the society and that the structure and principles are results from the interaction between individuals.

For our study we will bear in mind an objectivist view as we consider that when we examine the annual reports for the real estate companies chosen there are strict guidelines on how companies should report and construct their financial reports. The accounting standards obeyed are furthermore the same for all real estate companies and they do not depend on the individuals within those entities. Nevertheless, it is important to bear in mind that the accounting standard under examination, IFRS 13, is based on norms that are created by people hence it is not a part of any natural laws. Consequently, to adopt an objectivist approach completely is difficult as subjectivity and the involvement of social actors will be inevitable when conducting research within this field.

2.4. Research approach

A research approach is concerned with how a researcher considers theory and what role theory has in a study (Bryman & Bell, 2011, p. 11). There are two major contrasting views on this, namely deduction and induction (Saunders et al., 2012, p. 143).
The most shared view on how theory and research is connected can be traced to a deductive approach (Bryman & Bell, 2011, p. 11). When using this type of approach the research originates from building a theoretical framework followed by developing hypotheses and finally collecting and analyzing the data gathered (Creswell, 2003, p. 32 & Saunders et al., 2012, p. 144). Saunders et al. (2012, p. 146) mentions a few factors that are associated with a deductive approach; primarily it must be possible to measure the data and the result, hence making this type of approach must suitable for quantitative studies. Moreover the result should be able to be generalizable to similar situations, though for this to be accomplished the sample used has to be appropriate and satisfactory (Saunders et al., 2012, p. 146). Deduction is often used to build upon work previously finalized (6 & Bellamy, 2012, p. 77) and when there is a vast amount of literature from where it is possible to construct a theoretical framework (Saunders et al., 2012, p. 148).

In contrast to deduction, induction relies upon starting with the creation of data and having a question in mind for which an answer is required and thereafter developing and building theory (Saunders et al., 2012, p. 146; Bryman & Bell, 2011, p. 13; 6 & Bellamy, 2012, p. 76). Saunders et al. (2012, p. 146) claims that researchers that adopt an inductive approach tend to see the individuals within the context studied as humans, consequently placing a greater emphasis on the behavior of them. Another difference with deduction is that induction is linked with qualitative research (Bryman & Bell, 2011, p. 13). Induction is moreover associated with the risk of more errors than deduction (6 & Bellamy, 2012, p. 77), as well as this type of approach is usually subject to more time (Saunders et al., 2012, p. 148). However induction is very appropriate when there is a limited amount of previous literature within the research area (Saunders et al., 2012, p. 148).

Though deduction and induction are the two major branches when considering a research approach, Saunders et al. (2012, p. 147) discusses a third choice; abduction. If choosing abduction as the overall approach, a combination of deduction and induction is adopted (Suddaby, 2006, p. 639) and the research would then move back and forth between these two. Abduction similarly to induction takes more time but can be highly suitable when there is an immense amount of information in one area but less in another (Saunders et al., 2012, p. 148).

When choosing an approach for our study it was fairly uncomplicated. If commencing from what information you have surrounding your area of research, in our case there was a huge amount. Previous theory that covered old as well as new accounting standards, the importance of disclosures, quality, determinants and previous models used for investigating disclosure quality was able to be located. Moreover, as will be discussed further below we will conduct a quantitative research by which deduction is appropriate. From these factors the choice was taken to adopt a deductive approach.

### 2.5. Research design

After having stated our overall philosophy and approach that will be used throughout this study we will now discuss different research designs and what they signify. Firstly the purpose of a research design is to clarify the way in which the research will be conducted and how the data will be processed (6 & Bellamy, 2012, p. 20). Saunders et al. (2012, p. 170) states that there are three different types of designs; exploratory, descriptive and explanatory, that now will be more closely examined.
As the name indicates, exploratory research is a design that can be used when the purpose of the research is to explore a specific phenomenon and understand what is taken place (Saunders et al., 2012, p. 171). Sekaran (2003, pp. 119-120) continues by discussing that this particular design can be very helpful if information regarding the topic of choice is limited or when more material is needed in order to develop something more solid. It is furthermore argued that exploratory research is the only design that does not have as its objective to build and test hypotheses (Hair et al., 2003, p. 57).

A descriptive research design instead takes the approach to examine and obtain a clear and descriptive picture of a current situation (Williams, 2007, p. 66 & Saunders et al., 2012, p. 171). Sekaran (2003, pp. 121-122) goes further and describes that this precise design is often used within organizational settings when it is of interest to understand the behavior of groups. Saunders et al. (2012, p. 171) develops this by affirming that descriptive design has a very natural place within business.

The final research design is explanatory that examines and tries to determine the relationship between various variables (Saunders et al., 2012, p. 172). Sekaran (2003, p. 126) makes a distinction between a causal and a correlational study, the former aiming at finding the cause for an outcome and the latter detecting if there is a relation present. When using this design it is possible to combine it with a descriptive design, hence it becomes a descripto-explanatory research (Saunders et al., 2012, p. 171). Smith (2003, p. 7) discusses that the process of collecting the data is often descriptive within accounting research however in order to contribute in a meaningful it is of great importance to redirect to an explanatory research design.

Based on the abovementioned facts the most suitable for this study is to adopt a descripto-explanatory research design. The motivation for this comes from that our study will be based on describing the new accounting standard and how it have impacted the real estate industry, as it can be thought of as a relatively new area of research. On the other side, a major part of the research will be to describe and compare disclosure quality between companies and countries. If a difference is apparent we will furthermore try to explain from where it originates and between which variables that the relationship is the most robust.

### 2.6. Research strategy

A research strategy is concerned with how a researcher will work towards answering the research question/s stated (Saunders et al., 2012, p. 173). Saunders et al. (2012, p. 173) list eight different strategies that can be used for this purpose; experiment, survey, archival research, case study, ethnography, action research, grounded theory and finally narrative inquiry. These are all appropriate under different scenarios that will be explained below.

Experiments are often used as a strategy when the purpose of the study is to see how a change in one variable affects another one and the likelihood of that change (Saunders et al., 2012, p. 174). It is furthermore concerned with physical individuals as experimental and control groups are essential for many different forms of experiments (Saunders et al., 2012, pp. 175-176).
Another popular strategy frequently used within business is the survey strategy, where questionnaires are a very common format (Saunders et al., 2012, p. 177). This type of strategy can be used very broadly as it can answer many types of questions, such as what, who, where and how many (Saunders et al., 2012, p. 176). Moreover, it is usually fairly uncomplicated to explain and understand this form of strategy (Saunders et al., 2012, p. 177). However it is often quite time-consuming as it is of great importance to make sure that the sample is sufficient and representative as well as it is crucial to perform pilot tests (Saunders et al., 2012, p. 178). Though for quantitative studies this strategy is widely used (Saunders et al., 2012, p. 173).

When utilizing archival research, instead of creating your own data you exploit different records and documents that have already been created (Saunders et al., 2012, p. 178). Data for archival research has not been gathered for research purposes but instead it is a part of the reality under examination (Saunders et al., 2012, p. 179). This type of strategy similarly to surveys can be used for many types of research designs (Saunders et al., 2012, p. 173). When it is of interest to understand the past and the present and what has happened along the way archival research fulfills that purpose (Saunders et al., 2012, p. 179). The issue that could arise relates to the access of data and here it is important to make sure that the data needed can be found and then maximize the use of it (Saunders et al., 2012, p. 179).

When using a case study strategy the researcher is more invested in obtaining a deeper understanding of a phenomena within its own real life context (Saunders et al., 2012, p. 179). This form of research strategy can be used in quantitative, qualitative as well as when using mixed methods and is particularly suitable for explanatory and exploratory research designs (Saunders et al. 2012, pp. 173 & 179). Eisenhardt & Graebner (2007, pp. 25-26) states that since the purpose of such a strategy is to explore a phenomena deeply and to collect rich data it is possible to build and develop theory of good quality.

Ethnography relates to the study of groups and it was the first research strategy that was developed for qualitative research (Saunders et al., 2012, p. 181). It developed from studying culture in premature societies to the study of problems that arose in various social groups in the USA (Saunders et al., 2012, p. 181). Since then several new ethnographic strategies have been developed that instead have as their focus to examine how people in groups interact with one another (Saunders et al., 2012, p. 181). The most newly established strategies take different forms, they can for instance either take an objective or a subjective approach when observing groups (Saunders et al., 2012, p. 182).

As the name intends action research is concerned with taking action and develop solutions to various kinds of problems within organizations (Saunders et al., 2012, p. 183). It involves several stages that is constituted by finding the issue at hand, planning what action that is required followed by taking the corrective measures intended and finally evaluating the actions taken (Saunders et al., 2012, p. 183). The action aspect of this particular strategy makes it very different from other types of strategies, like the ones previously mentioned (Saunders et al., 2012, p. 184). Avison et al. (1999, p. 94) furthermore mentions that it takes into account both theory and practice and that it is a collaboration between researchers and the people within the organization that is being studied. Action research often takes some time as there are many stages in the process, therefore to have a longer perspective in mind is appropriate (Saunders et al., 2012, p. 185).
Grounded theory is another strategy that can be used for qualitative research (Saunders et al., 2012, p. 173). When using this strategy the social actors within the context being studied play a major role as the purpose is to understand the material produced by these individuals and then build or ground theory upon what have been collected (Saunders et al., 2012, p. 185). Grounded theory can also be seen as a strategy used as a means to understand and construct explanations about the interactions between social actors in different contexts (Saunders et al., 2012, p. 185).

The final strategy is narrative inquiry which instead of gathering fragmented parts of data from a larger sample focuses on a few individuals (Saunders et al., 2012, p. 188). The objective is then to obtain a full picture of a sequence of events that have taken place in the participant’s life, it can be seen as the researcher listens while the participant share its story (Saunders et al., 2012, p. 188). Afterwards the responsibility to decide what parts to use of the story is held by the researcher (Saunders et al., 2012, p. 190). The story-telling is likely to result in massive amounts of data therefore this strategy is very time-consuming (Saunders et al., 2012, p. 189).

After reviewing the possible strategies we believe that archival research is the only alternative that suits this particular study. Our research process will involve examining and analyzing corporate annual reports, this can be viewed as material that has been created without research as its primary target. As the financial statements will be the base of our research it is crucial to be able to access these for both years, 2012 and 2013, for the real estate companies in our sample. Nevertheless, annual reports are customarily made public as it is a way to communicate with its shareholders’, both current and prosperous ones. Moreover, we are interested in studying if there has been a change in disclosure quality since the implementation of IFRS 13. Based on this we find the choice of archival research to be motivated.

2.7. Time horizon

When conducting research, a time frame is often kept in mind in order to utilize the time you have in the best possible way. Another side of this is to furthermore know the purpose, whether it is to study a certain phenomenon at one point in time or to do it on more occasions. There are two possible choices; to perform a cross-sectional or a longitudinal study (Saunders et al., 2012, pp. 190-191).

A cross-sectional study signifies that you are interested in examining a phenomena at a specific time, as Saunders et al. (2012, p. 190) state it is about taking a “snapshot” and drawing conclusions from that data set. They furthermore argue that this type of time horizon is often used when there is a time constraint. Though this type of study only would require to gather data at one point in time it is still probable that this would be done over a period of time (Sekaran, 2003, p. 135).

An alternative is to conduct a longitudinal study. As opposed to a cross-sectional study data would be collected at several occasions (Sekaran, 2003, p. 135). Saunders et al. (2012, p. 190) discusses that such a study makes it possible to study development and change. This could suggest that if using this format it would be possible to dig even deeper into the subject and receiving an enhanced understanding over time.
Based on the abovementioned alternatives, our research will be both cross-sectional and longitudinal. This can be seen through several different elements. When examining annual reports we will study the entire content for 2012-13 and 2013-14 in order to compare how the new accounting standard; IFRS 13, have affected the fair value disclosures over these two years. In this sense the study will take a longitudinal approach as we are interested in studying the change over time, however it will also be in our interest to examine the level of compliance and the differences between countries. Consequently, the analysis of these two aspects will take a cross-sectional approach as it will be completed at one point in time and the aim is to take a snapshot of the situation regarding compliance and existing differences. This therefore motivates our choice of conducting a combination of a cross-sectional and a longitudinal study.

2.8. Research method

Within the area of research there are three main approaches that can be used; quantitative, qualitative and mixed methods (Williams, 2007, p. 65). As mixed methods refer back to a combination of quantitative and qualitative, the focus will be to further explain these two approaches. Depending on the choice that a researcher takes it will impact many other decisions, such as what philosophical view to follow and consequently if theory will be developed or tested (Bryman & Bell, 2011, p. 27).

Mahoney & Goertz (2006, p. 227) choose to view quantitative and qualitative research as two separate cultures that hold their own belief systems. This particular view seems to be quite accurate as depending on the choice of method the entire research process will include several diverse procedures. The main difference that can be seen is that quantitative research mainly accentuates numbers while qualitative research instead focuses on the use of words (Hair et al., 2003, p. 74; Bryman & Bell, 2011, pp. 26-27). Nevertheless, even numbers need interpretation, therefore though the main focus for a quantitative researcher is to utilize numbers, words will most likely be used as it is a necessity in order for readers to understand the context (Mahoney & Goertz, 2006, p. 245). Furthermore, the purpose of the research as well as the form of the data collection differ significantly between the two approaches. While quantitative research focuses on the testing of theory qualitative research develops theory through the data that is continuously emerging (Bryman & Bell, 2011, p. 410). A main objective with quantitative research is to be able to generalize the result from the sample studied to the whole population, in contrast a qualitative researcher is more invested in gaining a deeper understanding of a smaller sample (Bryman & Bell, 2011, p. 411).

Our research will take a quantitative approach as it will be the aim to be able to explain if IFRS 13 have in fact affected the quality of the disclosures related to fair value. In order to measure the change between 2012-13 and 2013-14 we will rely on statistical analysis and test the formulated hypotheses. Though in order for readers to understand the models developed, much descriptive text will be included. Furthermore it will be in our interest to be able to generalize the result that is reached to other real estate companies that was not a part of our chosen sample.

2.9. Literature and data sources

When conducting this research the information used will be based on secondary data. According to Sekaran (2003, p. 222) this type of data can be defined as information that
has been collected by someone else than the researcher utilizing those specific records. The same author discusses that there are several different kinds of sources of secondary data, one of those is corporate annual reports (2003, p. 223), which will comprise most of the data for the empirical part of our study. Similarly for the other containing chapters much secondary data will be used, mostly in the form of peer-reviewed scientific articles and books as well as reports and brochures from various organizations (e.g. EY, Deloitte & EPRA) that are relevant for our chosen topic. We will furthermore examine a few working papers, though we have been in continuous contact with one of the authors for one of the working papers; Stefan Sundgren; whom is a professor within accounting at Umeå University. For the other working papers, we have scrutinized them and examined several different articles to compare and to secure that the information in those are accurate.

In order to locate these different sources of information the library at Umeå University has been used frequently, both the physical library and the e-services that they offer. From these services many articles have been found through Business Source Premier (EBSCO), Emerald, Science Direct and JSTOR. In order to find relevant articles the most frequently used search words were: Fair value, real estate, disclosures, quality, IAS 40, IFRS 13, disclosure compliance, investment property and Europe.

After having completed the theoretical chapters we started with the empirical part and for this it was crucial to reach a sound sample of real estate companies for the study to be of good quality. When choosing companies we had some criteria that companies had to fulfill; that they had used IFRS for both years under examination in their annual reports, that real estate composed the majority of their business and that they to this day still are operating, to mention a few. In an article named “An International Exploration of Financial Reporting Practices in the Real Estate Industry” written by Edelstein et al. and published in the International Real Estate Review in 2012, they had utilized a specific global index in order to construct their sample. This global index had been constructed by FTSE EPRA/ NAREIT (The Financial Times Stock Exchange, European Public Real Estate Association/ National Association of Real Estate Investment Trusts). When we investigated FTSE further we found that it is a global leader in constructing indices and after some more exploration it was found that they in fact build indices for different parts of the world for different industries. When searching it was possible to locate an index for real estate companies in Europe and it fulfilled our criteria. The decision was therefore to use this index in order to construct our sample. As FTSE is a global leader within its field, it is world-known and exploited by various financial institutions we found it to be reliable and objectively created. More detailed and descriptive information of how we reached our final sample will be given in chapter four.
2.10. Summary of methodological choices

![Diagram of methodological choices]

Figure 1: Summary of our methodological choices

2.11. Ethical, legal and social considerations

All research is subject to formal methodological requirements, which were described and analyzed in the previous sections of this chapter, however, the responsibilities of researchers are not limited to the choice of appropriate research methods. According to Hair et al. (2003, p. 104), business researchers, alike businesspeople, must observe social, market, legal and ethical responsibilities in the performance of their work. These aspects need to be taken into consideration during all the phases of a study, mainly in order to ensure that it will produce new knowledge without harming others in the process.

In a research context, ethics can be defined as “(…) the standards of behavior that guide your conduct in relation to the rights of those who become the subject of your work, or are affected by it” (Saunders et al., 2011, p. 226). Although such standards are neither straightforward nor uniform between different individuals, Resnik (2011) emphasizes that respecting ethical principles has an important role throughout the research process. An ethical posture that condemns the falsification or misrepresentation of the data collected, contributes, for example, to the achievement of research aims by stimulating the production of knowledge in a truthful, non-misleading way. Also, the respect of ethical principles governing issues of ownership, copyright and data sharing have the potential of fomenting the collaboration among researchers, as individual researchers would feel that their work efforts are recognized and, at the same, protected, therefore, facilitating
the diffusion of scientific knowledge. Further, by stimulating transparency during the whole research process and, consequently, researcher accountability, ethical behavior allows the public to feel more confidence about the integrity of the research and the quality of its findings. Lastly, another relevant aspect associated with the observance of ethical requirements is the promotion of moral and social values as social responsibility, human rights, animal welfare and compliance with the law amongst others (Resnik, 2011).

Furthermore, a very commonly discussed ethical issue is the one of affiliation. Researchers often need external financing from public or private organizations in order to have enough resources for data collection, for example. However, although many times necessary, this sponsorship process brings out its own set of problems, mostly related to the independence of the researcher in relation to the financing organization and, consequently, the credibility of the research findings (Bryman & Bell, 2011, p. 142). In the specific case of our study, no financial ties were established with outside organizations and the choice of the researched subject was solely guided by our own interests as Business students. We have no vested interests in any specific set of findings neither are we connected in any way to the companies selected to our sample. Therefore, we do not risk to “take sides” as described by Bryman (2011, p. 150), which occurs when the researcher uses its research as a form to promote a certain ideology. Furthermore, this research has not as a goal to help any specific company to reach/show a competitive advantage in relation to another, but to assess the impact of a new legislative requirement in corporate reporting practices.

Another aspect of crucial importance when discussing possible ethical issues in research, is the manner by which the researcher deals with human participation within the study. Common issues in this regard relate to the potential physical or psychological harm to participants, the use of coercion or deception, the lack of informed consent and the invasion of privacy (e.g. Diener & Crandall (1978, pp. 17-96); Hair et al.(2003, p. 108)). In the this context, although the incidence of harm to participants is typically associated to research within the fields of medicine or psychology, social research can also inflict harm by exposing the subjects to stressful situations or sensorial experiences that can be regarded as disturbing or by coercing people to participate in the study (Hair, 2003, pp. 108-109). Our research, however, does not seek answers or observe behaviors of human participants, focusing solely on the analysis of secondary data provided by the annual reports of the sample companies. Concerning the possible use of deception, which can occur, for example, through “(…) the deliberate misrepresentation of a scientific study” (Diener & Crandall, 1978, p.72), much care and diligence were applied in our study to make sure that the sources used were both reliable (see section 2.9) and never used out of its original context. Additionally, in regards to the lack of informed consent, one could wonder about our exploration of annual reports in the data collection phase of our study. Nonetheless, such documents are of a public nature and readily accessible to all, therefore without the need of negotiating access and its associated issues (Saunders et al., 2011, pp. 216-225). Besides, according to Diener & Crandall (1978, p.39), the need for informed consent becomes superfluous when observing public records.

Still within this argument, the last explored ethical challenge would concern the invasion of the privacy of those who are the target of the research, in our case, the sample companies. It is important to take into account that all the studied companies have made their annual reports public through the publication of these on the respective corporate
websites, which entails that the information contained in these documents is not of a sensitive nature and therefore not harmful to the companies in any way. Furthermore, possible ethical considerations, related to the fact that the access to this data was internet-mediated, were also analyzed by us. According to Pace & Livingston (2005, p. 39), online data should only be collected and analyzed if: “the information is publicly archived and readily available, no password is required to access the information, the material is not sensitive in nature, no stated site policy prohibits the use of the material”. Such guidelines were carefully followed throughout this research.

Moreover, hand-in-hand with ethical behavior comes the researcher responsibility in respecting legal boundaries. In Europe, for example, Directive 95/46/CE was designed to safeguard collected personal data, defined in this context as “data that relate to a living person which allow that individual to be identified, perhaps in combination with other information known to the controller of the data” (Saunders et al., 2011, p. 232). In our research, however, the data collected refers only to public real estate companies which themselves were responsible for the publication of the annual reports we analyzed. No efforts were destined to discover the identity of the individuals in charge of producing these information as the published data is the legal responsibility of each of the companies’ Board of Directors. Another relevant legal issue is the respect for copyrighted material, especially when data is collected online (Saunders et al., 2011, p. 234). Such concern was observed during our whole research process and, therefore, the intellectual contributions of other researchers were fully acknowledged through appropriate referencing and no copyrighted material was reproduced without permission.

Besides an ethical conduct and law obedience, the researcher must also be attentive to his/her social responsibility, defined by Hair et al. (2003, p. 104) as the concern about how ones actions can affect specific groups of people, e.g. employees, investors etc., and/or society in general. In this study, we aim to equip, mainly legislators, investors, auditors and academics, with a better understanding about how new regulatory efforts are affecting the reporting practices within the real estate sector. At the same time, our results can also help companies in this industry to become aware of possible shortcomings in both legislation compliance and reporting quality. Further, as any other scientific research, our study has limitations, which we tried to make clear in section 1.6, however, we believe that our findings can contribute to better reporting practices, especially within the area of fair value of investment properties. Consequently, leading to a reduction of information asymmetry between managers and outside stakeholders, which represents an obstacle to an efficient allocation of resources.
3. THEORETICAL FRAMEWORK

In order to be able to provide an answer to our main research question, it is crucial to enhance our in-depth understanding of the area of choice. Therefore we will now discuss the pillar stones on which our research is based upon. As a starting point we will elaborate on the accounting standards that we will be focusing on; IAS 40 and IFRS 13, both the meaning of them as well as the changes that has taken place in fair value accounting. We will then continue with an overview of what the intended goal was with IFRS 13 according to the International Accounting Standards Board (IASB). Going even further in our analysis we will have a more focused discussion on disclosures, the quality of those and how quality has been and can be measured. Moreover, we will finish each section with connecting the information laid out to the real estate industry and investment properties, in order to understand how the new standard and its guidelines affect this specific sector.

3.1. IFRS 13

The introduction of IFRS 13 has meant several changes and a transition from using one standard to now using two, IAS 40 and IFRS 13, when fair value is used by companies to appraise their investment properties. As will be discussed in the following sections, the new disclosure requirements has comprised the greatest change and for assets and liabilities with no active markets, these requirements have been even more extensive.

3.1.1. IAS 40 & objectives with IFRS 13

On January 1st 2013, a new accounting standard was put into force by the IASB. A standard that included all guidance on how entities were to proceed when measuring an asset or liability at fair value. This signified that all guidance previously built into several different IFRSs would now be transformed into a single set of guidelines (BDO, 2013, p.7).

When IFRS 13 was considered, the institution that established them, IASB, had several objectives in mind as there had existed many inconsistencies prior to implementation (European Commission, 2012, p. 5). According to IASB (2011) this comprised a step in the right direction towards a convergence between US GAAP and IFRS. The financial accounting standards board (FASB), which is the equivalent institution to IASB for developing accounting standards in the U.S., issued a similar standard in 2007 that comprises much of the same information as IFRS 13, however some differences do exist (Johnson et al., 2010). Another aspiration from IASB (2011) has been to increase the transparency of the fair value measurements, to provide more information to external parties about what methods and assumptions the companies’ have made. It is in this context that the more extensive disclosures play a huge role. Before the issuance of IFRS 13, different standards had their own guidance on how to measure fair value as mentioned earlier, some with very limited guidance and others with quite extensive (BDO, 2013, p. 7). This could at certain times become quite confusing, therefore, the aim of the new standard was to compile a single set of guidelines, hence making it less complex and facilitate the understandability as well as improving the consistency (IASB, 2011). The IASB was also able to provide a clearer definition of what fair value actually was which would facilitate the communication of fair value measurement.
Prior to the issuance of IFRS 13 another standard was used exclusively for investment properties, IAS 40. This standard came into force when IFRS/IAS was started to be used back in 2005. Nonetheless, the amount of disclosures that had to be disclosed and the guidelines regulating those were underdeveloped and limited to the methods and significant assumptions used in the valuation process, as well as reconciliations between opening and closing balances for fair value measurements (IAS 40, 2012). Consequently, during the years prior to 2013 many claimed that there clearly was a need for more elaborate disclosures and more clear guidelines in fair value measurement (Nordlund, 2010). Nellessen & Zuelch (2010, p. 63) stated that with the guidelines under IAS 40 entities had to use a lot of judgment and make many assumptions about fair value estimates. This inevitable meant that the fair values estimated would be very subjective and the judgments used would most likely differ significantly between entities. From an investor’s point of view, it would lead to difficulties when comparing values between different real estate companies and their investment properties (Nellessen & Zuelch, 2011, p. 63).

3.1.2. Changes & Implications of IFRS 13

With a new standard there are always some implications, however for IFRS 13, Grant Thornton (2012) stated that many entities would most likely not be that vastly affected in the case of fair values, the effect would instead originate from the more extensive disclosures that entities now would have to provide. Nonetheless, several factors would have to be taken into consideration. In the next section we will provide a short discussion of the most significant changes and then focus our attention on the new disclosure requirements.

One of the major changes with IFRS 13 includes considering the highest and best use of a non-financial asset and whether the current use maximizes its value or if a change in use would be able to increase its value (Ernst & Young, 2011, p. 3). There are several factors that have to be examined when determining the best use according to IFRS 13 (p. 28), it has to be physically possible, legally permissible and financially feasible. For an investment property it would require to consider factors such as the location or the property’s size (IFRS 13, p. 28a). The legal restrictions and if the use considered would be able to generate sufficient with returns are also important factors to scrutinize (IFRS 13, p. 28b, c). In order for a specific use to be acceptable all these factors have to be looked at and evaluated. Moreover, this evaluation of the highest and best use also comprises the assessment of whether the maximized value can be achieved through an individual asset standing alone or in a group formation (Ernst & Young, 2011, p. 5). This entails evaluating non-financial assets and to assess whether the value can be maximized through one asset being valued individually or if several assets aggregated instead would supersede that value. For investment properties it is however usually not that common and appropriate to value these types of properties combined, according to Ernst & Young (2011, p. 5).

Before IFRS 13 was developed and issued, a fair value hierarchy only existed for financial instruments, the new standard was accompanied by a new hierarchy that was now to be used also for non-financial items (BDO, 2013, p. 50). The hierarchy is based on three different levels, level 1, 2 and 3 that uses different inputs in order to determine fair value (IFRS 13, p.72). Level 1 is the level that is given the highest priority, the inputs used here are directly quoted prices that are possible to retrieve from an active market (IFRS 13, p.
This level is often used for financial instruments because of the existence of active stock markets but for many assets and liabilities it could be extremely difficult or even impossible to identify these types of inputs and this is where level 2 and 3 are used instead. Level 2 excludes the inputs from an active market and takes into account other observable data that are either retrieved directly or indirectly (IFRS 13, p. 81). Within this level of the hierarchy it is possible to examine the quoted prices for similar assets or liabilities (IFRS 13, p. 82), for example when valuing investment properties this could involve scrutinizing properties that have been bought or sold in the last few years and that are located in a similar area. Though if significant adjustments would have to be made to the level 2 inputs they would clearly be classified as level 3 instead (EPRA, 2013, p. 5). Level 3 includes not only adjusted level 2 inputs but also unobservable ones (IFRS 13, p. 86). These could be generated from within the entity itself, however when performing these types of valuations, they are often made based on many judgments and assumptions, prone to much subjectivity. A summary of the three different levels can be found in figure 2.

**Figure 2: IFRS 13 Hierarchy Levels**

- **Level 1**
  - Directly quoted prices that are possible to retrieve from a active market, e.g. prices from the stock market (IFRS 13, 2014, p. 76).

- **Level 2**
  - Uses other observable data than quoted prices, retrieved either directly or indirectly, e.g. prices from similar assets and liabilities (IFRS 13, 2014, p. 81).

- **Level 3**
  - Significantly adjusted level 2 inputs or other unobservable inputs, e.g. discounted cash flows (IFRS 13, 2014, pp.85-86)

Appraisers have to take into account the market that the asset or liability is exchanged on (Duff & Phelps, 2011, p. 2). The principal market should be used if it is possible otherwise the most advantageous market should be determined. The principal market refers to the most active market that have the greatest volume for a particular asset or liability (IFRS 13, appendix A). The most advantageous market instead takes into account the price that would be possible to receive or the transferred price when selling or buying an asset or liability, i.e. the market where the selling price is maximized or the price paid minimized is considered the most advantageous market (Grant Thornton, 2012, p. 7).

One of the objectives with IFRS 13 was to clarify the meaning of fair value, a step towards this was taken through a reformulation of the definition where an exit price was emphasized.
Fair value is defined as follows according to IFRS 13 (2014, p. 9): “Fair value is the price that would be received to sell an asset or paid to transfer a liability in an *orderly transaction* between *market participants* at the *measurement date*.” (Emphasis added)

Compare to the previous definition, taken from IAS 40 (2012, p. 5): “Fair value is the amount for which an asset could be exchanged between *knowledgeable, willing parties* in an *arm’s length transaction*.” (Emphasis added)

If we start to scrutinize the previous definition, some key concepts can quite easily be traced; knowledgeable, willing parties and arm’s length transaction. According to IAS 40 (2012) these concepts relates to an exchange between a buyer and seller that possesses all necessary information about the asset or liability, and both parties are neither over-eager or forced to buy or sell, in other words they are both neutral (IAS 40, p. 42-43). Furthermore the price paid should not be higher than what would be required in a market that holds knowledgeable and willing sellers and buyers as well as both parties should be unrelated and act in an independent manner (IAS 40, p. 42, 44).

The new definition from IFRS 13 includes two other key concepts being; orderly transaction and market participants at the measurement date. Here orderly transaction refers to “a transaction that assumes exposure to the market for a period before the measurement date to allow for marketing activities that are usual and customary for transactions involving such assets or liabilities” (IFRS 13, appendix A). What can be seen here is that there is a much greater emphasis on an appropriate market as well as similarly to the previous definition, IFRS 13 states that the transaction should take place between neutral, independent, knowledgeable and willing parties i.e. market participants.

In a more related way to the price of the asset or liability, the new definition does in a clear way state that the price amounted for should be the one at the measurement date, this is not stated in the previous definition. The old one only mention the words “amount for which an asset could be *exchanged*…” (IAS 40, 2012, p. 5). This is an unclear definition as it could be extremely difficult to know if the original transaction price should be used or the current market price as stated by the European Commission (2012, p. 5). In a report from IASB (2011, p. 16-17) they discuss the meaning of an entry price (transaction price when buying an asset) and an exit price (selling price of an asset). They state that there have been some concerns raised about that there might be a difference between these two and that it might not represent fair value for non-financial assets, however it is concluded by the IASB that in most situations there shouldn’t be a major difference between these two measurements. To summarize, the new definition emphasizes the market and at what exact time the fair value should be measured.

**3.1.3. New disclosure requirements**

In addition to the abovementioned changes and implications, the most costly repercussions of IFRS 13 are the new disclosure requirements (European Commission, 2012, p. 3). The new standard introduced considerable more detailed disclosure requirements that especially focuses on level 3 inputs (Grant Thornton, 2012, p. 13). The IASB (2011, p. 6) stated that IFRS 13 would improve the transparency, especially when it came to the models and measures used for assets and liabilities that had less active markets. Therefore implying extended disclosure requirements for the lower levels of the hierarchy.
The disclosures now required are quite extensive, leaving very little room for misinterpretation. Although the previous disclosure requirements did provide some information concerning the valuation process, the new guidelines are much more thorough in its description. When examining the new disclosure requirements there are a few major changes that are apparent, these comprises disclosure of recurring and non-recurring items, the level used in the fair value hierarchy and extremely descriptive information of the entire valuation process and techniques used (IFRS 13, p. 91-99). These areas will now be examined more closely.

The new standard makes a distinction between measurements that are recurring and non-recurring, meaning measurements that are reported at the end of each reporting period and those that only are reported at particular circumstances respectively (IFRS 13, p. 93a). When studying the standard it can be seen that many disclosure requirements are equivalent between recurring and non-recurring measurements however for non-recurring measurements some exceptions are made regarding transfers between levels in the fair value hierarchy, reconciliations, gains and losses and sensitivity analyses (IFRS 13, p. 93c, e, f, h). As these measurements only occur under certain circumstances, it would most likely be extremely difficult to give this type of information as there would not be any figures or methods for the previous period to compare with. This would be needed in order to prepare reconciliations and determine gains and losses as well as transfers, therefore these exceptions seems reasonable.

For both types of measurements previously discussed, there are much information that have to be disclosed in relation to the level used in the fair value hierarchy. Most disclosures relates to level 3 but there are also certain ones that covers level 2 measurements. For all types of fair value measurements the level used most be disclosed primarily, this comprises all three levels. After this a distinction is made between recurring and non-recurring measurements. For both types when level 2 and 3 are used, disclosures have to be provided concerning valuation techniques (i.e. the market, cost or income approach, p. 62), what inputs have been used as well as an entity must provide information if they have changed technique and in that case it is also a necessity to elaborate on the reason of the change. Furthermore, for level 3 measurements information regarding the observable data used and the entire valuation process ought to be disclosed (IFRS 13, p. 62 & p. 93b, d, g).

For recurring fair value measurements there are additional information that should be revealed. Regarding level 1 and 2, information should be provided about transfers between these levels as well as a description of the policies related to them, reason for why a transfer has taken place should also be given. Concerning level 3 there are a number of supplementary disclosures that have to be specified in an entity’s annual report. A reconciliation should be made between opening and closing balances as well as the alterations in gains or losses in profit and loss and other comprehensive income and in what line items they have been recognized should be disclosed. Going further on with reconciliations, the changes attributable to purchases, sales, issues and settlements should be disclosed separately for each of the individual accounts. The changes in opening and closing balances related to transfers into or out of level 3 should also be provided accompanied by the reasons for the transfers and the policies for when a transfer is needed. Moreover it is important to disclose the transfers into or out of level 3 separately. For recurring fair value measurements classified as level 3 the amount of gains or losses
in profit and loss that relates to the change in unrealized gains or losses should also be disclosed together with a description of the line items in which they are included. The final disclosure requirement for recurring fair value measurements using level 3 is the necessity to provide a sensitivity analysis, by changing some of the unobservable inputs in order to see if the fair value changes significantly. Such an analysis should be completed for both financial and non-financial items (IFRS 13, p. 93c, e, f, h).

Besides the abovementioned disclosure requirements that are some additional ones that has less to do with the levels in the fair value hierarchy and instead focuses on non-financial assets, policies, when fair value is only disclosed (when other models are used), liabilities at fair value and the format of disclosures.

If the highest and best use of a non-financial asset differs from the asset’s actual usage, this fact shall be disclosed and explained why that is the case (IFRS 13, p. 93i). Moreover there is an exception in which fair value is decided in a different manner, if this exception is used that too must be disclosed (IFRS 13, p. 96). Furthermore, in some situations an entity can decide to measure assets or liabilities in other ways, an example of this could be investment properties that also can be measured using the cost model. Nonetheless in this case fair value must still be disclosed (IAS 40, p. 32). Under these circumstances there is a requirement that the fair value is disclosed along with information about the level, valuation techniques used, information concerning level 3 data and the highest and best use (explained above) (IFRS 13, p. 97). It is also stated that for liabilities measured at fair value that is issued with any third-party credit enhancements, this must be disclosed and information should be given about whether this enhancement has been considered and reflected in the fair value measured (IFRS 13, p. 98). Lastly, the format of the quantitative disclosures shall be given in a table format unless another layout is more suitable (IFRS 13, p. 99).

3.1.4. IFRS 13 & disclosure requirements for real estate companies

In previous literature there have been much research done in the area of fair value; the reliability of fair value and fair value for investment properties to mention a few areas (e.g. Dietrich et al., 2001 & Edelstein et al., 2012). As presented by Edelstein et al. (2012) the majority of the real estate industry in an international context uses fair value as its valuation model, 37 out of the 45 firms investigated. However there is an alternative for investment properties, i.e. the cost model that implies that an entity instead of measuring its property at fair value would measure it based on the initial price paid at the recognition date less any accumulated depreciation and impairment losses (IAS 16, p. 23 & 30). Therefore, one could wonder why fair value is used more broadly. Laux & Leuz (2009, p. 827) discusses the fact that fair value reflects the current market conditions, as it is measured based on market prices as well as it increases the transparency. Dietrich (2001, p. 155) continues by pointing out that fair value is a more accurate measure and holds less bias when estimating selling price for investment properties than historical cost. Moreover Sundgren (2013, p. 250) concludes that both approaches to valuation have their limitations, but that fair value accompanied with elaborate disclosures is a good measure.

From the discussion above it is apparent that fair value is the most used valuation model in the real estate industry for investment property. Though in a report published by EPRA (2013, p. 5) it is stated that for investment property, level 3 inputs are mostly used, implying that there is a lack of an active market for this sector and that entities themselves
have to make many assumptions. Nordlund (2010) argues that when it comes to property valuations there is a clear demand for more descriptive disclosures. IFRS 13 has introduced more elaborate disclosures, however from the previous discussion and lay out of the new disclosure requirements it is clear that IFRS 13 was not only created with investment properties in mind, as supported by EPRA (2013, p. 4). Therefore moving forward we will now examine the new disclosure requirements for investment properties more closely.

As IFRS 13 was issued and put into force, it replaced certain parts of IAS 40, especially information regarding fair value measurement. The previous disclosure requirements for investment properties stated in IAS 40 were not changed significantly but instead additional disclosures were required. The old requirements that are still effective after the implementation of IFRS 13 states that an entity must provide information of what valuation model is used, i.e. the fair value model or the cost model. An entity that possesses investment property shall furthermore describe and disclose when property held under operating leases are deemed to be and are accounted for as investment property and in cases when it is difficult to assess, the criteria used to determine this should be given. Information regarding appraisers, if one has been involved and to what extent must be disclosed. If an appraiser has not been considered this should also be revealed. Moreover an entity has the obligation to provide information regarding the amounts in profit and loss that originates from rental income and direct operating expenses that both generated and did not generate rental income. Furthermore, the change in fair value recognized in profit and loss should also be given when a sale of investment property has taken place from a group of investment properties where the cost model has been used into another group where the fair value model is being used. If there exists any restrictions on the investment property this shall be disclosed along with the amounts or any transfers of income and earnings from the disposal of property. Furthermore any obligations that an entity holds (e.g. to construct, develop or maintain etc.) should be disclosed as well. Reconciliations between the beginning and ending carrying amounts should also be disclosed with the requirement of disclosing many items separately (IAS 40, p. 75-76).

In a report issued by Ernst & Young (2011, p. 8) they state all the additional disclosures that are currently required, by comparing IAS 40 with IFRS 13. When examining the report it is clear that most of the new disclosure requirements relate to the fair value hierarchy. As investment properties very often are measured using level 3 inputs and occasionally level 2 inputs (PwC, 2011, p. 8) real estate firms that possess these types of properties automatically become subject to the more extensive disclosures under IFRS 13. The new requirements that are relevant for investment properties are the following: to state the level used in the fair value hierarchy and when using level 2 or 3 disclosing measurements, valuation techniques and the inputs used. For these levels changes in valuation technique if any have been made and the reasons for the changes should be provided as well. Information regarding transfers between the levels must also be given. For level 3 measurements there are additional disclosures, these include that the entire valuation process should be described and a description should also be included in the disclosures explaining the sensitivity of the fair value measurements. Another new requirement relates to the highest and best use and in the case where an investment property could be better used in another way this should be disclosed (Ernst & Young, 2011, p. 8). A summary is shown below (figure 3) to highlight the new disclosure requirements under IFRS 13 that are relevant for real estate companies and are based on the levels 2 and 3 respectively.
3.2. Corporate Disclosures

Corporate disclosures have an important role in providing information and depending on specific factors, the details that are given could vary significantly between different companies and countries. This will be further discussed in the coming sections before continuing with the elaboration of disclosure quality and how that can be measured.

3.2.1. Importance of disclosures

According to a survey made in the UK by Deloitte (2010, p. 12), the average length of corporate annual reports increased from 44 pages, in 1996, to 101 in 2010. This astounding growth of over 250% was driven mainly by the largest companies, which could, at first, be attributed to the greater complexity of their operations. However, the IAAS (2011, p. 10) links this phenomenon mainly to the multiplication of the disclosure notes on annual reports, which become steadily more intricate and extensive in order to fairly represent some “(... new and challenging subject areas such as financial instruments, business combinations and off-balance sheet financing”. At this instance, disclosures can be defined “(...) any deliberate release of financial information, whether numerical or qualitative, required or voluntary, or via formal or informal channels” (Gibbins et al., 1990, p. 122), although the focus of this research will lie on information disclosed through public companies annual reports.

In this context, to better understand why firms spend so much time and resources to present their financial information to the public, it’s first necessary to take into consideration the disclosure demand to which business entities are exposed to. Such external demand for information is often attributed to an information asymmetry issue.
between the business entity and its investors, which “occurs when one or more investors possess private information about the firm’s value while other uninformed investors only have access to public information” (Hillegeist, 2007, p. 443-444). This information problem, on its turn, is a direct result of the agency relationship between management and outside investors, characterized by the delegation of the decision making authority to the manager (agent) in behalf of the principal(s), investors. Additionally, the latter separation between ownership and stewardship of the firm tends to generate incentives to the manager to act on his/her own interests, disregarding the principal’s objectives, which leads to the necessity of monitoring the agent’s actions (Jensen and Meckling, 1976, p.5).

Furthermore, the main consequence of the informational gap that separates managers and other stakeholders is the so-called adverse selection, which happens “when privately informed investors trade on the basis of their private information” (Hillegeist, 2007, p. 444) and, therefore, generates a market inefficient by preventing an adequate resource allocation (Healy & Palepu, 2001, p.407). It is in these circumstances that corporate disclosures are believed to contribute to the reduction of information asymmetry between market participants (Verrecchia, 2001, p. 172), which, consequently, tends to increase market liquidity of the entity’s securities as the disclosure of relevant private information “(…) increases the competition with market makers and reduces the volatility of future order imbalances, leading to exit of market makers” (Diamond & Verrecchia, 1991, p. 1348).

Other advantages connected with forthcoming corporate disclosures are the strengthening of the relationship of the company with its financial analysts, who hold great influence in the investment market (Stanga, 1976, p. 42) and the increase in the earnings forecast accuracy, which results in less forecast revision volatility and dispersion and therefore, might decrease the cost of capital for the firm (Lang & Lundholm, 1996, p. 469). However, Botosan (1997, p. 347), limits this relationship of greater disclosures with a reduced cost of capital to firms with low analyst following, making it reasonable to conclude that such benefit is more accentuated in a high information asymmetry environment where only few analysts provide information about the company and, consequently, any corporate disclosure have a larger market impact. Still in line with these arguments, the public release of information by firms can be said to increase traders’ welfare as it reduces security holders’ incentives to search for private information and, therefore, investors can allocate resources more efficiently elsewhere, besides it also increments risk sharing by contributing to more homogenous views of the company among investors, consequently offsetting speculation (Diamond, 1985, p. 1073).

Moreover, although the disclosures provided by business entities are a vital tool in providing a fair presentation of companies’ financial position, performance and cash flows (IAS 1, 2014, p. 15), complete disclosure might not be desirable from a corporate point of view. The total elimination of information asymmetry between managers and the firm’s stakeholders would be extremely costly to the firm’s owners, which, according to Elliot & Jacobson (1994, p. 80), bear alone the costs associated with disclosing information while potential investors incur no expenses at all. Nonetheless, disclosure costs are not only associated with the financial toll generated by the development and presentation of information but also include potential competitive disadvantages, for example. This issue is a result of the fact that, although entities usually divulge information targeting potential investors and creditors, competitors might also gain an insight on the company’s functioning and strategic planning, which may generate
economical drawbacks to the disclosing firm. Hence, there is also a great value in secrecy or, at least in controlling the timing in which certain information are released (Elliot & Jacobson, 1994).

However, it’s also important to take into consideration that firms are not in complete control of how much and what type of information they provide to stakeholders, especially concerning disclosures in the notes of annual reports. Therefore, although Diamond (1985, p. 1089) predicted that the optimal corporate disclosure policy should only reveal information that investors would be able to obtain elsewhere at a finite cost (unreachable content could not influence traders’ decision making process), not only endogenous forces motivate disclosures. Business entities, notably those publicly traded, are nowadays under the regulation of accounting standards and the constant scrutiny of analysts, rating agencies and auditors, which “(…) enhance the credibility of management’s disclosures” (Healy & Palepu, 2001, p.406) at the same time that it might provoke a change in corporate behavior as a way to accommodate disclosure requirements. Such changes might generate benefits and/or costs for the entity, according to Elliot & Jacobson (1994, p. 86). One may infer, for example, that sustainability disclosure requirements might lead some firms to be more aware of the importance of being environmentally and socially responsible whereas comprehensive mandatory valuation disclosures might force firms to contract external valuators at extra cost.

According to the regulatory guidelines provided by IFRS (IAS 1, 2014), financial reports’ disclosures must include information about the choice of accounting policies, estimation uncertainty, assumptions about the future and/or any other information management deems to be material to the company’s stakeholders. On its turn, information can be considered material “(…) if its omission or misstatement could influence the economic decisions of users taken on the basis the financial information” (IFRS Framework, p. 30). Hence, although specific mandatory disclosure requirements are further described in each of the IAS/IFRS standards, the pervasive concept of materiality still allows a great degree of managerial judgment in the preparation of disclosures in financial reports.

Thus, disclosures’ extent and level of detail are still points of contend between companies, accounting regulators and users of financial statements, as shown by the recent discussion forum about financial reporting disclosure, organized by IASB in 2012. On that occasion, preparers of financial reports brought to the regulators’ attention that the cumulative mandatory disclosure requirements, result of new and revised standards, are becoming overwhelming (IASB, 2012, p.19) and generating a “checklist approach” to disclosures. Such approach, characterized by the treatment of mandatory disclosure guidance provided by IFRS as mere list of requirements, obeyed with no extra consideration, has become an obstacle to an appropriate materiality judgment (IASB, 2012, p.37). Consequently, many users of financial reports experience an increase in presence of the so called “boilerplate” text, i.e. information not directly related to the firm, in the notes of financial reports, contributing to a perception of disclosure overload, as show in survey organized by IASB (2012, p.38). Regarding this disclosure problem, the concern is that the inclusion of immaterial information in the financial reports might obscure the real relevant information, therefore compromising its usefulness in the decision making process of users (EY, 2013, p. 3). As a response to these concerns, IASB is currently revising IFRS Conceptual Framework with its completion expected no earlier than mid-2015 (IASB, 2012, p.2).
### 3.2.2. Determinants of disclosure

Besides the subjective aspect of determining materiality, other factors are also often associated with differences in firm-level disclosure policies. According to Archambault & Archambault (2003, p. 192), “the firm-based financial reporting disclosure decision is made within a complex process that considers national as well as corporate factors”. Hence, financial reporting and disclosures are the result of not only the needs of financial statement users but also of the environment in which the business entity is inserted.

#### National-level factors

In this regard, one factor that pervades both national and corporate systems is culture (Archambault & Archambault, 2003). Hofstede et al (2010, p. 6) has defined culture as “the collective programming of the mind that distinguishes the members of one group or category of people from others” and established four dimensions through which culture can be measured: power distance (from small to large), collectivism versus individualism, femininity versus masculinity and uncertainty avoidance (from low to high). Every national culture can, therefore, be characterized by different scores on each of these four dimensions (Hofstede et al, 2010, p. 31). Furthermore, these cultural dimensions are broadly utilized within social science research (Hope, 2003, p. 221) and have often been connected to accounting values which were shown to influence disclosure policies, like conservatism and secrecy (e.g. Gray, 1988, Zarzerski, 1996, Jaggi & Low, 2000).

However, only two of these dimensions are more often considered to have a significant effect on corporate disclosures: individualism and uncertainty avoidance. High power distance societies, where people tend to accept an unequal and hierarchical distribution of power (Hope, 2003, p. 221), for example, were hypothesized to foster firms that disclosure less investor-related information in order to preserve power inequalities (Gray, 1988, p. 11). Nonetheless, Salter & Niswander (1995, p. 391) found this influence not to be significant at all. Further, although Jaggi & Low (2000, p. 497) consider that high masculinity societies, i.e. which value assertiveness, high achievement and financial success, foster stronger businesses that disclosure more, Gray (1988) concludes that such correlation is not nearly as important as the ones present between individualism or uncertainty avoidance, and financial disclosures.

Therefore, a greater importance has been given by previous research concerning the roles of individualism and uncertainty avoidance in disclosure policies. Cultures with a high degree of individualism are characterized by lose social ties between individuals who are only expected to take care of themselves or their immediate family (Hofstede et al, 2010, p. 92). The environment in these societies tend, therefore, to be more competitive, which Jaggi & Low (2000, p. 497) associated with a lower level of secrecy, consequently firms usually disclose more information if compared with those originated in collectivist cultures. Meanwhile, firms from countries that score high in the uncertainty avoidance dimension, i.e. the members of these societies feel threatened by ambiguous or unknown situations (Hofstede et al, 2010, p. 191), gravitate towards a higher level of secrecy and,

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1 The accounting value of secrecy, first delineated by Gray (1988), can be defined as “a preference for confidentiality and the restriction of disclosure of information about the business only to those who are closely involved with its management and financing as opposed to a more transparent, open and publicly accountable approach” (Salter & Niswander, 1995, p. 382).
therefore, have lower levels of disclosure as a way to avoid competition and maintain security (Gray, 1988, p. 11).

Moreover, the former dimension has also been connected with the accounting value of earnings conservatism (i.e. firms are faster to report economic losses than income gains), which is usually more pronounced in entities from countries with a high degree of uncertainty avoidance, that is, managers in these countries are more concerned with security and tend to avoid risks of misrepresenting earnings (Gray, 1988, p. 10). Hence, firms inserted in this sort of environment tend to be more careful and maybe even less timely in their disclosures.

By the way of contrast, Jaggi & Low (2000) found that cultural values lose its explanatory power concerning disclosures when the research also takes into consideration the legal system of a country, especially in the context of common law countries\(^2\). At the same time, it’s possible to argue that legal systems mirror national culture. However, Zarzerski (1996) provides evidence that market forces can alter the role that culture plays in molding disclosure policies. Companies that are more active in international markets are usually inclined to present a different disclosure behavior than it would in its home culture. This happens as a result of process in which international companies “borrow” the global culture of its competitors and, therefore, “(…) international firms from secretive countries are likely to be motivated to disclose higher level of public information than they would at home, in order to show the quality of their operations” (Zarzerski, 1996, p.35).

Furthermore, it’s also important to consider the role of the political and legal environments in the quality of financial reporting and, consequently, both on the level and quality of disclosures. According to Soderstrom & Sun (2007, p. 688), the political and legal systems in a country can influence firms financial reporting by, directly or indirectly, affecting the creation and enforcement of accounting standards, corporate ownership, capital structure, financial market development and tax system.

In regards to accounting standards, Soderstrom & Sun (2007, p. 689) describe their setting as “(…) a political process, in which users of accounting such as tax authorities, banks, shareholders, managers and labor unions have significant influence on standard setters”. Further, in spite of IASB relative independence, the political authorities in many countries, especially in Europe, still have considerable influence over accounting standards creation and implementation (Soderstrom & Sun, 2007, p. 689) and therefore, also over financial disclosures at firm-level.

Regarding legal systems, many studies divide countries in two main groups: common law and code/civil law countries, with the latter being often discriminated further, based on the law family from which they derive, according to La Porta et al. (1998, p.1115).Within this argument, the code/civil law countries can, therefore, be subdivided into French, German and Scandinavian origins while common law countries can be simply identified as having an English origin. Taking into consideration only countries in Europe (as these are the focus of our research), La Porta et al. (1998, pp.1147-1148) presents the following categorization (Figure 4):

\(^2\) Although finding mixed results, Jaggi & Low (2000) conclude that culture is a more significant determinant of disclosures within code/civil law systems.
Although not directly studied and, therefore, categorized by La Porta et al. (1998), Poland is mentioned by the authors as one of the regions to which Napoleon introduced the French Commercial Code in the 1800’s (p.1118).

Figure 4: Countries in Europe categorized by legal system origin.

According to Ball et al. (2000, pp.13-14), in code/civil-law countries it is typically the government that establish and enforce accounting standards in agreement with the firms’ stakeholders, usually labor unions, creditors and business associations, while in common-law countries such task is delegated to private institutions as the FASB in the US. Therefore, in code/civil law countries, “there is a greater degree of inside owners, such as banks, who get their information directly from managers (or may even participate in firm decision making through board membership)” (Hope, 2003, p. 222). In common law countries, on the other hand, most parties involved with a firm are kept “at arms-length” from managers, which results in a higher degree of information asymmetry and, consequently, generates a relative higher demand for timely disclosures in those countries (Ball et al., 2000, p. 14).

Further, both investors and creditors have the best degree of legal protection in common law countries, where shareholders often enjoy rights as no share-blocking before meetings and low requirements for the share capital necessary to call up extraordinary meetings (La Porta et al., 1998, p. 1129) while secured creditors are often paid first in these countries (La Porta et al., 1998, p. 1138). At the same time, civil law countries as a whole offer lower investor and creditor protection, with the French origin nations being at the bottom in both instances and the German countries provide a little extra protection for secured creditors (La Porta et al., 1998).

In this context, countries with a higher protection for creditors provide firms with a better possibility of receiving bank financing at a lower cost (Soderstrom & Sun, 2007, p. 693). Banks tend to have access to proprietary information directly from the firm’s management and, therefore, do not rely as heavily on financial reporting for information as investors do (Diamond, 1984, p. 383), which could indicate a lower need for disclosures. However, Soderstrom & Sun (2007, p. 692) emphasize the positive role that a strong investor protection (in conjunction with low corruption rates) has on the size and development of financial markets. Such effect, on its turn, tends to contribute to higher information demand for public companies on more developed markets (Burgstahler et al., 2006), and consequently, pressures firms to disclose more.
Associated with the degree of protection of specific social groups, another distinctive characteristic between countries with different legal origins is the rigorousness of law enforcement, which also can influence corporate disclosures. The quality of law enforcement is greater in Scandinavian origin nations, followed by English and German origin countries (in that order) with French origin constituents presenting once more the worse quality of all (La Porta et al., 1998, p. 1141). In this context, a possible consequence of the combination of high investor and creditor protection, and stricter law enforcement can be a less concentrated ownership structure and a high level of debt financing, typically found in common law companies (Jaggi & Low, 2000, p. 516). In such cases, the higher external demand for information pushes firms to present more detailed disclosures (Jaggi & Low, 2000, p. 516).

Lastly, the political and legal systems have a great influence in the construction of the tax structure in a country. Nations where the purpose of the accounting and tax systems coincide, that is, the financial accounting reporting is used by the government as a tool for tax control and collection, tend to have lower quality accounting standards as these serve mainly political interests (Soderstrom & Sun, 2007, p. 694). Additionally, high taxes provide incentives to hide profits (Soderstrom & Sun, 2007, p. 694) and, consequently, decrease the levels and quality of disclosure.

**Firm-level factors**

Although it seems impossible to disregard the influence of a business entity’s macro environment in its disclosure policies, a great share of the literature focused on understanding how structural and financial characteristics of the firm can affect the extent and quality of the information it makes public. In this regard, one factor that has constantly featured in previous research is firm size, which was measured in diverse occasions through proxies like total book value of assets, total market value of the firm, total revenue and total number of shareholders (Ahmed & Courtis, 1999, p. 37). Further, large size firms were often found to provide a greater amount of disclosures than their smaller counterparts (e.g. Cooke, 1989; Wallace et al., 1994), which is normally attributed to the fact that larger entities have more complex operations, need to answer to a higher information demand generated by wider spread of ownership and have more resources, financial and otherwise, to employ in data-gathering and more efficient reporting systems (Ahmed & Courtis, 1999, p. 53).

Besides firm size, factors like listing status, ownership structure, leverage, profitability, liquidity and audit firm were also associated with different levels of disclosure but with mixed results. In this context, publicly listed companies are more inclined to provide the public with more information (Cooke, 1989, p. 121), which can be explained by the stricter regulatory requirements these entities are subject to. In conjunction with the more rigorous rules of the Stock Exchange for information, firms only achieve the listing status when they have “(…) reached a certain size with regard to turnover, book value of assets, or issued share capital” (Ahmed & Courtis, 1999, p. 54). Therefore, there’s a strong relationship between listing status and firm size, which has a positive correlation with disclosure amount as previously discussed.

On a related approach, studies like the one performed by Givoly et al. (2010), associate the corporate ownership structure with reporting quality, which we could also connect
with quality of disclosures. Regarding this factor, companies that are publicly owned are subject to higher information demand from investors (Givoly et al., 2010, p. 222), which could lead to better disclosures. Nonetheless, it is possible to hypothesize that higher levels of ownership concentration, which can be seen as a consequence of poor investor protection systems in some countries (La Porta et al., 1998, p. 1152), can diminish information demand and, therefore, compromise disclosure levels.

Furthermore, Ahmed & Courtis (1999, p. 54) expose the relationship between the capitalization structure of a firm and the amount of disclosed information. In this context, firms that have a greater proportion of interest fixed securities in relation to equity (strategy mostly used for tax benefits) tend to present higher levels of information disclosure. Therefore, high levered firms were found to be more inclined to provide better quality annual reports as a way to reduce uncertainty and obtain more advantageous financing terms (Iatridis, 2011, p. 99). Additionally, Core (2001, p. 443) attributes the lack of external financing necessity as one of the reasons for low-growth firms opting to provide very little disclosures beyond the ones demanded by regulation.

Other factors like firm’s profitability and liquidity have also been explored. Firms that achieve high profitability levels were found by Lang & Lundholm (1993, p. 251) to be more willing to provide a greater amount of disclosures when the information asymmetry between managers and outside investors is perceived to be high. Such willingness to disclosure more detailed information could also be explained by managers’ needs in supporting its continuance and compensation (Singhvi & Desai, 1971, p. 134). Concerning the corporate liquidity effect on disclosures, research results can be contradictory. If we take high liquidity as a measure of performance, firms tend to disclose more information as a way to inspire confidence of outside stakeholders at the same time that a weak performance/low liquidity might also require firms to disclose more in order to explain their bad results (Wallace et al., 1994, p. 46).

Finally, the role of the audit process in molding disclosure policies, especially when the firm is a client of the Big-4 audit firms (KPMG, EY, Deloitte, PWC), is the target of contradictory views. Although it might seem intuitive that audited firms provide more disclosures, it’s also possible to argue that such effect can become irrelevant once we control for other variables as size or legal environment, for example. Therefore, even if some evidence was found linking the clients of the biggest audit firms to a higher amount of disclosures, mainly the mandatory kind (Patton & Zelenka, 1997, p. 618), Ahmed & Courtis (1999, p. 55) conclude that, generally, the size of audit companies is not a significant factor in the aggregate amount of disclosures.

### 3.2.3. Disclosure regulation and compliance

The decision of releasing corporate information to the public do not lie entirely in the hands of firm managers. Some disclosures are not only demanded by accounting and national rules but also have their frequency and structure regulated. Therefore, it’s possible to identify two types of disclosures: mandatory and voluntary. According to Hassan & Marston (2010, p. 7), mandatory disclosures can be defined as the “information revealed in the fulfillment of disclosure requirements of statute in the form of laws, professional regulations in the form of standards and the listing rules of stock exchanges”. Voluntary disclosures, on the other hand, refer to the information firms make public in

---

3 Sundgren et al. (2013) utilizes ownership structure as an explanatory variable to disclosure quality.
addition to those formally required by legislation and can also include disclosures recommended by other market regulators.

In regards to the reasons behind the existence and progressive expansion of regulatory disclosure requirements, accounting literature often mentions four rationales: financial externalities, real externalities, agency costs and economies of scale. Real externalities occur when a firm’s disclosures provide information not only about its own financial situation but also about other firms (Beyer et al., 2010, p. 315) and, through the reduction of information asymmetry, increase social welfare. However, this free rider situation (i.e. the company bears all the costs of providing the disclosures) do not provide incentives to business entities to publish such information, therefore the legislation counteracts this issue in order to push the market towards an equilibrium situation (Admati & Pfleiderer, 2000). On their turn, real externalities refer to how the disclosures provided by one firm can affect other firms’ operations (Beyer et al., 2010, p. 315), e.g. when a company reports weak earnings in a certain market and that motivates competitors to try to increase their own market share. Once more, the cost-benefit ratio is not favorable for the disclosing firm, but increases market efficiency, motivating legislation. Further, as previously discussed in section 3.2.1, agency relationships generate information asymmetry issues that disclosures can help to solve. The role of regulation in this matter is to enforce disclosures that shareholders cannot, creating then wealth through the reduction of information asymmetry in the market. Lastly, concerning economy of scales, disclosure regulation is found to promote market-wide cost savings “by reducing investors’ duplication of information production and enhancing comparability of disclosures across firms” (Beyer et al., 2010, p. 316).

By the way of contrast, despite the fact that all companies are subject to some sort of regulatory disclosure requirements, there is still a great amount of firm-to-firm variation concerning the information provided in corporate financial reports. Such variability can be attributed not only to the publication of voluntary disclosures but also to the lack of uniformity in the implementation of accounting rules. In this context, although IFRS rules aimed to make financial reporting more comparable and transparent, Ball (2006) declares that the IASB standards still allow a great deal of leeway to both companies and countries as it permits the use of managerial judgment regarding several items including disclosures, and local enforcement in its implementation. The result of such loose regulation would be an uneven implementation of IFRS, which “(...) could increase information processing costs, by burying accounting inconsistencies at a deeper and less transparent level that more-readily observable differences in standards” (Ball, 2006, p. 22).

Furthermore, according to Glaum et al. (2013), research concerning compliance with IFRS is still quite scarce and no uniform theory of compliance with regulatory disclosures exist. However, the author defines non-compliance as a firm’s failure to fully provide the information required by the pertinent accounting standards. Such issue is said to happen as a result of the overlook, intentional or not, of certain requirements by management or as a consequence of a misinterpretation of the applicability of a particular rule to the company’s situation (Glaum et al., 2013, p. 167). Lastly, the degree to which a company complies with mandatory disclosure requirements is typically a result of both national and firm-level factors, despite the use of common accounting standards (Glaum et al., 2013, p. 195), as brushed upon in section 3.2.2.
3.2.4. Disclosure Quality

Although firms seem progressively more aware of the benefits brought up by corporate disclosures (as discussed in section 3.2.1), disclosure quality (or sometimes the perceived lack of) has become a reason for concern of both legislators and investors (Kothari, 2000, p. 91). While some investors claim that the information in financial reports are losing relevance, putting them in a position to have to filter through the clutter, IASB recognizes that as a standard-setter, it has the role of ensuring that “(...) financial reports contain high quality, transparent and comparable information” (IASB, 2013, p. 12). Notwithstanding, the concept of what disclosure quality means is far away from unanimous (Beretta & Bozzolan, 2008, p. 341).

According to IFRS Framework (2014, pp. 24-42), financial statements should present four qualitative characteristics: understandability, relevance, reliability and comparability. Therefore, firstly, the publicly available corporate information should be easily understandable by reasonably knowledgeable users willing to carefully analyze its contents. Secondly, these information should be able to influence the economic decisions of its users “by helping them evaluate past, present or future events or confirming or correcting, their past evaluations” (IFRS Framework, 2014, p.26). Thirdly, financial statements should be free of bias or material mistake so as to be dependable by users and to portray a faithful representation of the transactions and other corporate events. Lastly, information should be presented in a way which allow the users of financial statements to compare the firm’s performance over time and with other business entities.

However, these concepts of quality refer to financial statements as a whole not specifically to narrative disclosures. Besides, even if we take for granted that such characteristics should also permeate narrative disclosures, measuring disclosure quality based on them would still not be an easy task. As it is recognized in the Framework (2014, p. 45), it is often necessary to find a balance between these qualitative characteristics, which means that sometimes some of these aspects might have to be more or less sacrificed in the benefit of the others. Such trade-off is inherently subjective, and therefore harder to understand and quantify, as it is a direct result of managerial judgment.

Still in this context, Kothari (2000, p. 91) associates the quality of disclosures to both the quality of the accounting standards that regulate them and the enforcement or application of these regulatory requirements. High quality accounting standards would, according to this argument, guide firms to disclose information that would contribute to the production of timely and credible financial statements. Levitt (1998, p. 80) summarizes this concept by declaring that “good standards, like good cameras, produce sharper, more accurate pictures. Weak standards, like bad cameras, are unreliable— with some, you never know if you will get a good shot, while others produce fuzzy, out-of-focus images”. However, the idea of “good” or “bad” standards faces the same obstacle that the concept of disclosure quality – it is usually defined by its desired consequences, e.g. reliability and relevance, which are often perceived asymmetrically by different individuals or stakeholders groups.

Regarding the element of enforcement, it is directly connected with the type of legal system in place. Common law countries are characterized by a better reporting timeliness due to a greater degree of income conservatism, which is expressed through enhanced disclosure standards and higher litigation costs if compared with code law countries (Ball
et al., 2000, p.47). Hence, a more rigorous enforcement of accounting standards tends to lead to higher disclosure quality in common law countries according to Ball et al. (2000).

Additionally, it is also important to consider the effect that securities regulators and auditors may have in disclosure quality. IASB (2013, p.12) highlights the role of security regulators, e.g. the European Securities and Markets Authority (ESMA) in Europe and the Securities and Exchange Commission (SEC) in the USA, in improving the consistency of corporate disclosures by independently regulating the market while auditors enhance the credibility of the published information through their assurance services. Therefore, both the market presence of securities regulators and audited financial statements are positively associated with disclosure quality. However, the quality increase provided by audit services is only significant when the audit is conducted by an industry-specialist professional, who consequently has a better insight of the sector’s peculiarities, and in unregulated industries. According to Dunn & Mayhew (2004, p. 55), “(…) audit firms have no impact on disclosure quality in regulated industries where regulators provide an additional layer of monitoring, there is less information asymmetry, and clients have less incentive and opportunity to provide enhanced disclosure quality”.

3.2.5. Proxies and disclosure quality approaches

As a consequence of the difficulties in reaching a consensus about what constitutes disclosure quality, several approaches were developed over time aiming to describe and measure it. Such approaches utilize an array of different proxies, i.e. “a figure that can be used to represent the value of something in a calculation” (Oxford Dictionaries, 2014) to measure disclosure quality. The most common of them is, in this context, quantity. Based on the assumption that more information leads to higher quality of disclosures, many empirical studies do not draw a line between quantity and quality (Beretta & Bozzolan, 2008, p. 336).

Further, two main disclosure quality approaches reinforce this association and utilize quantity as a proxy for quality. The first one consists on the application of researcher-constructed disclosure indices to the disclosures provided in annual reports. Such indices vary in complexity, from a mechanical application of a binary code, which documents the mere presence or absence of certain information (e.g. Cooke, 1989) to a judgment-based scoring system, which attributes different values to information according to the researcher’s own criteria (Artiach & Clarkson, 2011, p.25). Therefore, researcher-constructed indices can be either unweighted or weighted.

Concerning weighted index studies, one of the most well-known models was created by Botosan (1997) in order to investigate the correlation between disclosure level and cost of capital. The author investigates voluntary disclosures provided in corporate annual reports by dividing them in five categories (background information, summary of historical results, key non-financial results and management discussion and analysis), constructed based on the recommendations of financial analysts and investors. Although all the defined categories had the same relative importance in this study (and therefore, received the same weight in the final calculation), different items within each category were attributed disparate scores. Elements within the background information category, for example, received one point for each information disclosed plus another point if the information was not recoverable from the basic financial statements, e.g. corporate goals.
Additional categories obeyed their own peculiar scoring system, with financial information always assuming a heavier weight than non-financial information as the former was considered by Botosan (1997, p.331) to be more precise and, therefore, more credible and useful to financial statements’ users.

Beretta & Bozzolan (2008, p. 338) summarize unweighted and weighted disclosure indices, respectively, as follows:

\[
UDI_j = \frac{1}{n_j} \sum_{i=1}^{n_j} d_i \\
WDI_j = \frac{1}{n_j} \sum_{i=1}^{n_j} w_i d_i
\]

Where \( UDI_j \) represents the unweighted disclosure index of company \( j \) and \( WDI_j \), the weighted disclosure index of company \( j \). The maximum expected amount of items to be disclosed is \( n_j \) while \( d_i \) is the information item actually disclosed by company \( j \). Finally, \( w_i \) is the weight associated with information \( i \) disclosed by company \( j \).

In this context, in order to decide which items to include in their self-developed indexes and sometimes also which weights to attribute to each disclosed information, most authors consult relevant academic and professional literature. The idea behind this is to provide credibility to their research by justifying the importance of the chosen disclosure items. Still in this search for credibility, one approach can be to use accounting standards as filters through which to select relevant disclosure information, but there’s also the possibility to go directly to the experts who could guide the construction of the index (Artiach & Clarkson, 2011, p. 28). Relative to the weighting of each chosen item of information disclosed, the selection usually occurs with the help of surveys with different user groups of financial statements who then help the research to determine the relative importance of each item to which normally an ordinal scoring system is attributed. However, such differentiation made through the weighting system becomes insignificant when analyzing a large number of items (Beattie et al., 2004, p. 210).

Moreover, another type of disclosure index study is built through the use of analysts’ rankings instead of the ones constructed by the researcher. Most of these studies utilize variations of the so-called AIMR reports. These reports issued by the Association of Investment Management and Research from the 1980 until 1997 reviewed American companies’ reporting practices in order to evaluate how effectively they were communicating with investors (Artiach & Clarkson, 2011, p. 30). A cross section of companies in several different industries (in average nineteen annually) were analyzed and their disclosures, evaluated within three dimensions: annual published information, quarterly and other published information, and investor relations. Each industry (including service, manufacturing and financial amongst others) had its own committee, which surveyed the most important disclosures for each sector, assigned weights to these aspects, within each dimension, according to researched disclosure requirements and then applied these scores to specific firms (Lang & Lundholm, 1993, pp. 253-254). Examples of studies applying such disclosure index are Lang & Lundholm (1993, 1996) and Botosan & Plumlee (2002).

Both approaches, however, have advantages and disadvantages as models for disclosure quality research. First of all, researcher-constructed indices allow for the measurement of different types of disclosures across different firms without being limited to those covered
by analyst ratings. At the same time, this type of index is considered to provide greater transparency as it makes it possible to provide better clarification about the types of disclosure studied and how their degree of importance is mirrored in the developed scoring system (Artiach & Clarkson, 2011, p. 25). On the other hand, this method is very labor-intensive due to the fact that companies can disclose an immense amount of information, which usually leads researchers to focus only in one-subsection of the disclosures provided, consequently reducing the size of the samples analyzed as well as the longitudinal aspect of these studies (Beatty et al., 2004, p.2010). Such issue combined with the subjective nature of the construction and interpretation of these indexes can possibly compromise the credibility and replicability of the findings. Besides, self-constructed indices have mostly only investigate annual reports (e.g. Botosan, 1997) and, therefore, any information disclosed by firms in analysts meetings or conference calls, for example, tend to be excluded from the researched sample (Healy & Palepu, 2001, p. 427).

Analysts’ indexes like those based on the AIMR reports, contrastingly, tend to broaden the research design by also allowing the investigation of corporate disclosures provided through other medium than annual reports (Artiach & Clarkson, 2011, p. 25). Another advantage lies on the fact that the measures used were developed by analysts, who are some the primary users of disclosed information, according to (Lang & Lundholm, 1993, p. 255), and therefore, “(…) have access to all of a firm’s public disclosures, are able to assess the information needs in the industry, and have used the disclosed data during the year”. Nonetheless, this approach also presents the disadvantages of not explaining to external users the selection process of the analyzed companies and, ultimately also being the result of subjective judgment, this time from analysts (Healy & Palepu, 2001, p. 427). Besides, the AIMR index was discontinued after 1997, which leads us to wonder if the information needs of analysts have not changed since.

Furthermore, one of the main concerns associated with both of these quality measurement methods is the fact that they utilize the extent of corporate disclosures (quantity) as the only attribute to assess disclosure quality (Beretta & Bozzolan, 2008, p. 337). As an alternative to this one-dimensional approach, Beattie et al. (2004, p. 215) developed a new computer-assisted multi-dimensional analysis framework to investigate the quality of narrative disclosures, specifically those of voluntary nature. The selected dimensions were based on the topic and subtopics of the so-called Jenkins Report, published by the American Institute of Certified Public Accountants (AICPA) in 1994. This influential report is the result of the work of a special committee which investigated the needs of business reports’ users and then constructed a framework describing the sort of information found to be the most important in the decision-making process of users (AICPA, 1994).

Regarding the differential aspect of this model, Beattie et al. (2004) measures disclosure quality as a function of both quantity and spread of disclosures. Quantity refers to the amount of disclosures expected based on the size of company and the complexity of its operations and is measured through the proxy composed by the standardized residuals from a regression of the number of text units, i.e. “a phrase containing a single piece of information” (Beattie et al., 2004, p. 207), on size and complexity. The greater the amount of residuals, more disclosures are presented (Beattie et al., 2004, p. 230).

The concept of disclosure spread, on its turn, refers to the balance of topics covered by the narrative disclosures in business reporting. In order to measure disclosure spread, two
proxies were chosen. The first one is the Herfindahl index, which is a concentration measure defined by $H = \sum_{i=1}^{n_i} p_i^2$, where $p_i$ refers to the proportion of disclosure presented on a topic $i$. This statistic can assume a maximum value of 1, if all disclosures refer to only one topic, and minimum, of $1/n$ when the disclosures are spread out over a number $n$, of topics and/or subtopics (named MainH and SubH, respectively). In this context, the lower the value of $H$, better the spread is, which tends to increase disclosure quality ceteris paribus. Further, another way to measure spread is through the count of so-called “non-empty topics”, i.e. subtopics the firm presents at least one disclosure about. A high number of non-empty topics are associated with a better spread (Beattie et al., 2004, p. 230). Mathematically, this index framework can be expressed as (Beretta & Bozzolan (2008, p. 340):

$$Q_c = \frac{1}{4} \sum_{j=1}^{4} q_i$$

Where $q_i$ is the proxy for quality dimension $i$, $q1$ relative quantity of disclosure $q2$ std [(1-Herfindal index at topic level)] $q3$ std [(1-Herfindal index at subtopic level)] $q4$ std [number of nonempty subtopics]

Moreover, besides these dimensions, Beattie et al (2004) establishes three attributes which are used to assess disclosure quality: time orientation (historical vs forward-looking vs non-time specific information); financial orientation (financial vs non-financial) and quantitative orientation (quantitative vs qualitative information). Therefore, according to Beretta & Bozzolan (2008, p. 339), such framework “(...) offers a richer descriptive profile of a firm’s narrative disclosures than the simple count of disclosed item”. A schematic summary of this framework can be seen in Figure 5.

![Figure 5: Beattie et al. (2004) model summary. Source: Beretta & Bozzolan (2008, p.339).](image-url)
However, the model developed by Beattie et al. (2004) received its own share of criticisms. Botosan (2004, p. 290) points out that, despite the incorporation of more “qualitative” measures as spread, for example, all models up to that period were still mostly based on the idea that quantity can describe disclosure quality, which, according to the author, might be a result of the inherently unmeasurable nature of disclosure quality. Besides, another limitation of this specific model is that it only addresses the quality of voluntary disclosures as it assumes that mandatory disclosures are regulated by pertinent accounting standards, ignoring, therefore, questions related to the differences in application of mandatory disclosure requirements and how that affects the quality of disclosures. Further, Beattie et al. (2004, p. 232) recognizes that a drawback related to their model is its labor-intensive nature, which tends to limit sample sizes.

Furthermore, in the more recent literature, Beretta & Bozzolan (2008, p.371) further develop Beattie et al. (2004) model and establish a more definitive separation between disclosure quantity and quality by finding statistical evidence that quantity is not a good proxy for disclosure quality, at least concerning narrative disclosures in annual reports. The authors, therefore, propose a multidimensional framework to analyze disclosure quality that encompasses “not only how much information is disclosed (quantity) but also what and how it is disclosed (richness)”. Richness, in this context, is defined as “a function of the coverage of and the dispersion among the different topics that qualify a firm’s business model (width) and of the insights disclosed on the future performance of the firm (depth)” (Beretta & Bozzolan, 2008, p.342).

Hence, the richness width of disclosures is a function of the variety of information disclosed by the firm. More varied information would, according to Beretta & Bozzolan, (2008, p.342), contribute to a better general overview of the business by outside investors, increasing, therefore, disclosure quality. On its turn, depth refers to the availability of information concerning the so-called economic sign (positive, negative, not disclosed), which provide an indication of how the item disclosed will most likely impact the firm’s performance; the type of measure (financial or non-financial, quantitative or qualitative, not disclosed and the outlook profile of the disclosed information, that is, how much the information is forward-looking and the management plans relative to it (Beretta & Bozzolan, 2008, p.343). Based on these measures, the authors develop an overall quality index defined as (Beretta & Bozzolan, 2008, p. 346):

\[
QUALITY_i = \frac{1}{2} (STRQT_i + RNC_i)
\]

Where STRQT\(_i\) is the standardized relative quantity of disclosures and represents the quantity dimension, which is the result of “the relative number of disclosed items, adjusted for size and industry” (Beretta & Bozzolan, 2008, p. 343) and RNC\(_i\) is the richness of disclosures, which is a function of both width and depth of the disclosed information. A summary of Beretta & Bozzolan (2008, p.342) proposed model’s dimensions can be seen in Figure 6 below.
In summary, we can observe that there is little consensus about what disclosure quality really means and how it can be measured. Innumerous other proxies were used in previous studies as a strategy to evaluate disclosure quality, including attributes of analysts’ forecasts, analyst following, management forecasts, disclosure of good/bad news, disclosure frequency etc. (Hassan, 2010). Although the literature provides little guidance concerning which proxies or models to use, only focusing in their advantages and disadvantages of different methods (Artiach & Clarkson, 2011, p. 25), approaches utilizing the construction of indexes (e.g. Botosan, 1997; Lang & Lundholm, 1993, 1996) and content analysis⁴ (e.g. Beattie et al., 2004, Beretta & Bozzolan, 2008) seem to be some of the most common. Other approaches include, for example, readability studies, which investigate “the syntactical difficulties of text” (Clatworthy & Jones, 2001, p. 311) and are based on the idea that the usefulness of narrative disclosures is a function of both how it is presented (readability) and the users’ capacity of discerning the right meaning of the information (understandability) (Smith & Taffler, 1992, p. 84).

### 3.2.6. Disclosure quality for real estate companies

In order to better grasp the quality of disclosures under IFRS 13, it is of great importance to understand the development of the standards treating investment properties and its disclosures. Before the implementation of IAS/IFRS there were no standard procedures

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⁴ Content analysis is a “research technique for making replicable and valid inferences from data to their context” (Krippendorff, 1989, p. 403).
on how to treat investment properties and the national GAAPs varied significantly between countries in Europe (Muller et al., 2011, p. 1140). With the introduction of a homogenous regulation one could have assumed that it would lead to better comparability and symmetry however Muller et al. (2011, p. 1152) argued that even though the information asymmetry had been reduced as a result of IAS 40, it was still very much apparent. In a report issued by the AFM (2012) it is discussed what disclosures are made in relation to fair value measurement of investment properties and the differences that exist between companies reporting these types of properties. From the sample examined there are several differences in what and how assumptions and aggregation levels are disclosed. With that situation in mind it becomes difficult for investors to compare companies and to take active decisions regarding future investments. Consequently it is clear that the comparability has to be improved which would lead to a better quality of disclosures for investment properties (AFM, 2012, p. 4).

Disclosures are important in many aspects but according to Vergauwe & Gaeremynck (2014, p. 4) they especially matter and play a major role for quality purposes. The same authors’ state that with less guidance in what disclosures should be made, pressure will be put on the preparers of the financial reports as much judgment must be used (Vergauwe & Gaeremynck, 2014, p. 6). Though with little guidance, it comes as a surprise when in an article by Edelstein et al. (2012, p. 367) it is obvious that many real estate firms in Europe disclose information in addition to what is required. This supplementary information can often be seen in companies’ annual reports and relates to property levels as well as the reports from external appraisers that have been used in the valuation processes (Edelstein et al., 2012, p. 369). Edelstein et al. (2012, p. 371) argues that the additional information that is being provided improve the transparency of the financial reports provided by real estate firms and an idea would be to perhaps adopt these practices in the real estate industry as a whole.

As have been discussed in the previous section there are many different methods and models for measuring disclosure quality, though the ones already mentioned applies to more general disclosures covering many types of industries. In a working paper by Sundgren et al. (2013) the following regression model is developed with specifically real estate companies in mind.

\[
Disclosure_i = \beta_0 + \beta_1 ORIGIN_{German} + \beta_2 ORIGIN_{English} + \beta_3 ORIGIN_{French} + \beta_4 ENFORCEMENT + \beta_5 SECRECY + \beta_6 OWN_{25-50} + \beta_7 OWN_{0-25} + \beta_8 LNREVENUES + \beta_9 \Delta LNREVENUES + \beta_{10} BIG4 + \beta_{11} SOLVENCY + \varepsilon
\]

In this regression, \(Disclosure_i\) represent the quality of the disclosures provided by the real estate companies investigated. There are two variants developed, the first one being:

\[
 Disclosure_1 = COSTCAP + OPINCEXP + VACANCY
\]

And the second one:

\[
 Disclosure_2 = COSTCAP + OPINCEXP + VACANCY + INFLATION + \Delta COSTCAP + SENSITIVITY
\]

In both models there are several components which determine the disclosure quality. The first one, \(Disclosure_1\), is given a value between 0 and 3 and is dependent on the interest
rate, COSTCAP, and is given a one if the company has provided information regarding the discount rates used and/or the yield rates. The authors have furthermore taken into consideration whether the assumptions regarding rental income and operating expenses, OPINCEXP, have been disclosed. If this is found in the annual reports it is denoted a one. If the vacancy rate, VACANCY, is provided another one is given. For Disclosure\textsubscript{2}, the elements included in Disclosure\textsubscript{1} are also a part of the second model however there are three additional components. In total a value between 0 and 6 is given for Disclosure\textsubscript{2}. If the expected inflation rate, INFLATION, is given it is denoted a one. The authors include this component as the inflation rate has the possibility to influence many other elements. Moreover, if the company examined has given the discount rate for the prior year, ∆COSTCAP, a one is given. The final element is whether a sensitivity analysis, SENSITIVITY, of any kind is included in the notes to the financial statements. If a sensitivity analysis has been disclosed another one is given (Sundgren et al., 2013, p. 14-17).

Sundgren et al. (2013) then takes this one step further in order to investigate what elements that explain the disclosure quality for the companies chosen. This is done by examining the following variables for each company: country of origin, enforcement, level of secrecy, ownership structure, sales, growth of sales, audits by the big 4 and solvency (as discussed in section 3.2.2.). Among the findings, the authors have established, for example, that both Scandinavian and German origin real estate companies tend to disclose more information than French origin firms in the same sector (Sundgren et al., 2013, p. 4). Further, by performing this study it is possible to find the determinants of disclosure quality for and between companies within the real estate industry (Sundgren et al., 2013, p. 17-18).

In the model developed by Sundgren et al. (2013) it is clear that all the variables are considered to have equal importance as what is being observed is whether some specific information is disclosed or not. By giving denotations of 0 or 1, the model can be classified as an unweighted model.

### 3.3. Research model

After the discussion laid out in this chapter we are interested in investigating both the compliance under IFRS 13 in the first year of implementation as well as if the quality of the disclosures given has changed. The level of compliance will ultimately affect the quality as a company that complies better with the regulations set out is more prone to providing information that according to the IASB will increase the quality of the disclosures. It is from this way of reasoning that the three sub-questions felt relevant for this particular research, as they relate to one another.

As can be seen from the research model below there are various factors that can explain the level and quality of disclosures from a macro-perspective (mainly the aspect of culture and the legal system present) as well as a firm-perspective (firm size, leverage, audit firm and profitability). Though these aspects have the possibility of affecting the disclosure quality, our emphasis will be on examining the impact of IFRS 13 between two different points in time and hence not trying to explain the change, if one is apparent, by studying
these macro- and firm-specific factors. However still having these different determinants in mind when proceeding with our research.

In order to measure the compliance under IFRS 13 we will use a self-constructed index that will take into consideration different types of information that is provided by the real estate companies under scrutiny. Further details about this index will be presented in chapter 4. Regarding the measurement of disclosure quality, an adaptation of the model presented by Beretta & Bozzolan (2008) will be used, which is a development of the BMF-model constructed by Beattie et al. (2004). An important consideration of this model is that when constructed this was exploited when analyzing the full annual reports and the various parts included. The adaptation is based on the fact that our focus is merely a specific part of the annual reports; fair value measurement of investment properties. With this in mind, some parts of the original model would be extremely difficult to use for our purpose. Nevertheless, we will consider both aspects that were brought up by Beretta & Bozzolan (2008): quantity and richness, nonetheless with some alterations.
Figure 7: Our research model
4. EMPIRICAL STUDY

In this chapter, relevant information for the collection and analysis of our empirical data will be provided. Firstly, the hypotheses, which have been developed to answer our main research question and sub-questions, will be presented. Secondly, there will also be an elaboration on how the sample has been determined. A major part of this chapter will, however, be devoted to explaining our complex data collection process in order to provide a better understanding of the data analysis in the coming chapter. Finally, we will end this chapter by presenting an explanation of the statistical tests that will be applied in chapter five.

4.1. Hypotheses

This research aims to shed some light over how IFRS 13 have affected the disclosure quality for investment properties in real estate companies. As it is a very complex research area, we have developed three sub-questions in order to make it possible to answer our main question. The first one relates to compliance, the second one to the disclosure quality in a longitudinal perspective and the final one takes into consideration the differences that might exist between the examined countries in Europe after the implementation of IFRS 13.

Sub-question 1: for real estate companies in Europe, what is the level of compliance with IFRS 13 fair value disclosure requirements for investment properties?

Sub-question 2: are there any differences in disclosure quality for investment properties in real estate companies in Europe, before and after the implementation of IFRS 13?

Sub-question 3: are there any differences in quality between different countries in Europe in IFRS 13 related disclosures for investment properties in real estate companies?

4.1.1. Compliance levels with IFRS 13

As have been discussed thoroughly in the theoretical framework, disclosures can take different shapes, both in the form of mandatory and voluntary disclosures. Though, when we examine compliance, we refer to the mandatory disclosures that real estate companies are obliged to provide in accordance with the laws and regulations that exist within this particular area. Moreover, we believe that compliance is an important aspect to study in this context as the quality of the disclosures partially depends on how companies decide to apply the regulatory disclosure requirements (Kothari, 2000, p. 91). In this setting we present the following hypothesis:

Hypothesis 1:

H₀: The average compliance level of real estate companies in Europe to IFRS 13 disclosure requirements for investment properties (µₑ) = 75 %

H₁: The average compliance level of real estate companies in Europe to IFRS 13 disclosure requirements for investment properties (µₑ) > 75 %
\(H_{a2}\): The average compliance level of real estate companies in Europe to IFRS 13 disclosure requirements for investment properties (\(\mu_c\) < 75 %)

The choice of 75 % as our benchmark originates from the fact that it can be expected that the compliance level is relatively high as this regulation has the force of law in this region. Though leeway is given, seeing that it is the first year of implementation and some real estate companies might have a longer transition period. We believe that 75 % represents a very high compliance level and, when testing the hypothesis, it will be our task to examine the compliance levels across real estate companies in Europe. If the collected average compliance level is equal to 75 %, the null hypothesis can be accepted. On the other hand, if we fail to reject the null hypothesis, further analysis will be performed in order to determine if the average compliance level exceeds (\(H_{a1}\)) or is inferior to 75% (\(H_{a2}\)).

4.1.2. Disclosure quality before and after IFRS 13

As previously discussed in the conceptual framework section, there is no consensus in what constitutes disclosure quality, with several authors in the field often investigating disclosure quantity as a substitute for quality. In our research, we opted for employing the disclosure quality concept developed by Beretta & Bozzolan (2008), in which quality is seen as the result of a balance between several observable dimensions, such as quantity and richness of disclosures (see section 4.3.2). Amongst the several theories developed in the subject, we believe this framework to be the one that best captures the complexity of the concept and, therefore, allow us the possibility to perform a deeper analysis in this research context.

Furthermore, as described by our research question, we intend to investigate the possible effect of IFRS 13 in the disclosure quality of real estate companies in Europe. Hence, it becomes interesting to compare the quality of the disclosures in this economic sector before and after the implementation date of this new standard. As brushed upon in section 3.2.4, disclosure quality is often influenced by both the quality of the relevant accounting standards and how they are applied by companies (Kothari, 2000, p. 91). Consequently, after testing the compliance levels with IFRS 13, it’s important to also test if the change in accounting standards and, therefore a supposedly increase in their quality, is positively associated with an increase in disclosure quality. We express such idea through the hypothesis below:

Hypothesis 2:

\[H_0: \mu_{\text{DisQua Before}} = \mu_{\text{DisQua After}}\]
\[H_a: \mu_{\text{DisQua Before}} \neq \mu_{\text{DisQua After}}\]

Where \(\mu_{\text{DisQua Before}}\) represents the mean of the disclosure quality index\(^5\) for investment properties in real estate companies in Europe before the implementation of IFRS 13 while \(\mu_{\text{DisQua After}}\) refers to the mean of the disclosure quality index for investment properties in real estate companies in Europe after the implementation of IFRS 13.

---

\(^5\) The disclosure quality index used in our research is an adaptation of the model developed by Beretta & Bozzolan (2008) and will be further discussed in section 4.3.2.
The null hypothesis will be considered true if the mean of the disclosure quality index of the companies in question presents no significant differences after the implementation of IFRS 13 if compared with the previous period. The alternative hypothesis, on the other hand, will only be accepted if the mean of the disclosure quality index of the companies in our sample present significant differences after the implementation of IFRS 13 if compared with the previous period.

4.1.3. Disclosure quality in different countries in Europe

Besides the longitudinal approach described in the previous section, we will also dedicate ourselves to a cross-sectional study of how disclosure quality can be affected by different companies’ locations. Although our unit of analysis until this point has been real estate companies located in Europe as a whole, it can also be interesting to investigate if significant differences in disclosure quality can be found between specific groups of companies, categorized based on the origin of their legal system. For this categorization we utilize La Porta et al. (1998, p. 1115) country division in four legal family traditions: French, German, Scandinavian and English origins.

Further, as discussed in section 3.2.2, La Porta et al. (1998) found that the quality of enforcement of accounting standards and, consequently, overall accounting quality tend to vary in countries with different legal origins. Sundgren et al. (2013) confirms this finding, by establishing that real estate companies from French origin countries in Europe usually disclose much less information when compared with German and Scandinavian origin nations. Therefore, as disclosure quantity is one of the elements which can influence disclosure quality, we would like to test such relationships. In order to accomplish this, after checking for overall disclosure quality in the sample, we will divide the chosen companies in four different legal origin groups and then once more, apply the disclosure quality index based on Beretta & Bozzolan (2008) to investigate possible quality variation between the groups. Such strategy is expressed in the main hypothesis below:

Hypothesis 3:

\[ \begin{align*}
H_0: & \quad \mu \text{DisQua}_{English} = \mu \text{DisQua}_{French} = \mu \text{DisQua}_{German} = \mu \text{DisQua}_{Scandin} \\
H_a: & \quad \mu \text{DisQua}_{English} \neq \mu \text{DisQua}_{French} \neq \mu \text{DisQua}_{German} \neq \mu \text{DisQua}_{Scandin} 
\end{align*} \]

Where:

- \( \mu \text{DisQua}_{English} \) is the same as the mean of the disclosure quality index for investment properties in real estate companies in English origin countries in Europe;
- \( \mu \text{DisQua}_{French} \) is the same as the mean of the disclosure quality index for investment properties in real estate companies in French origin countries in Europe;
- \( \mu \text{DisQua}_{German} \) is the same as the mean of the disclosure quality index for investment properties in real estate companies in German origin countries in Europe;
- \( \mu \text{DisQua}_{Scandin} \) is the same as the mean of the disclosure quality index for investment properties in real estate companies in Scandinavian origin countries in Europe.
The null hypothesis will be accepted if the mean of the disclosure quality index of real estate companies for one origin group is not significantly different from any other mean in the sampled groups after the implementation of IFRS 13. The alternative hypothesis, on the other hand, will only be accepted if the mean of the disclosure quality index of real estate companies in at least one of the origin groups considered is significantly different from the mean of another group.

 Nonetheless, Hypothesis 3 presents a limitation: it can possibly point out that there is a difference between the means of these origin groups (if the null hypothesis is rejected), but it cannot specify between which pair of groups the difference can be found. Therefore, in order to test pair-wise relationships, the following sub-hypotheses have been developed:

Sub-hypothesis 3.1
\[ H_0: \mu_{\text{DisQua}_\text{French}} = \mu_{\text{DisQua}_\text{Scandin}} \]
\[ H_a: \mu_{\text{DisQua}_\text{French}} \neq \mu_{\text{DisQua}_\text{Scandin}} \]

Sub-hypothesis 3.2
\[ H_0: \mu_{\text{DisQua}_\text{German}} = \mu_{\text{DisQua}_\text{English}} \]
\[ H_a: \mu_{\text{DisQua}_\text{German}} \neq \mu_{\text{DisQua}_\text{English}} \]

Sub-hypothesis 3.3
\[ H_0: \mu_{\text{DisQua}_\text{Scandin}} = \mu_{\text{DisQua}_\text{English}} \]
\[ H_a: \mu_{\text{DisQua}_\text{Scandin}} \neq \mu_{\text{DisQua}_\text{English}} \]

Sub-hypothesis 3.4
\[ H_0: \mu_{\text{DisQua}_\text{French}} = \mu_{\text{DisQua}_\text{German}} \]
\[ H_a: \mu_{\text{DisQua}_\text{French}} \neq \mu_{\text{DisQua}_\text{German}} \]

Sub-hypothesis 3.5
\[ H_0: \mu_{\text{DisQua}_\text{French}} = \mu_{\text{DisQua}_\text{Scandin}} \]
\[ H_a: \mu_{\text{DisQua}_\text{French}} \neq \mu_{\text{DisQua}_\text{Scandin}} \]

Sub-hypothesis 3.6
\[ H_0: \mu_{\text{DisQua}_\text{German}} = \mu_{\text{DisQua}_\text{Scandin}} \]
\[ H_a: \mu_{\text{DisQua}_\text{German}} \neq \mu_{\text{DisQua}_\text{Scandin}} \]

Figure 8: Sub-hypotheses 3.1-3.6

4.2. Data collection

In this research, we analyze the information related to fair value disclosures for investment properties present in the annual reports of real estate companies in Europe for the years immediately before and after the implementation of IFRS 13, i.e. 2012-13 and 2013-14. The reason for not simply stating that we will examine the annual reports for 2012 and 2013 can be explained by the fact that a part of our sample exercise split financial years. To be able to cover companies that prepare their annual reports by fiscal year and split financial year we will, going forward, use the denotations 2012-13 and 2013-14. However, this has no impact on the research as IFRS 13 has effect from January 1st 2013 or periods that starts thereafter.
In order to select our sample, we turned our attention to an index constructed by FTSE in cooperation with both EPRA and NAREIT called the FTSE EPRA/NAREIT Global Real Estate Index Series. Such index “is designed to reflect the stock performance of companies engaged in specific aspects of the major real estate markets/regions of the world - Americas, EMEA (Europe, Middle East and Africa) and Asia” (FTSE et al., 2015, p.3). Further, one of the main reasons that motivated our choice to use this index as our starting point is the rigorous criteria to which real estate companies are subject in order to become a part of it. In this context, some of the main criteria utilized in the construction of this global index include: being listed on selected stock exchanges, providing audited annual reports in English and deriving at least 75% of its EBITDA from the so-called relevant real estate activities, i.e. “(…) the ownership, trading and development of income-producing real estate” (FTSE et al., 2015, pp.10-11). Besides, the use of this index for sampling purposes was already established in peer-review literature pertinent the financial reporting practices within the real estate sector (e.g. Edelstein et al., 2012).

Moreover, considering that our area of interest in this research is to study only real estate companies in Europe, we then focused on a regional index called the FTSE EPRA/NAREIT Europe index, which is part of the FTSE EPRA/NAREIT Global Real Estate Index Series and is constituted by 94 companies in 16 countries (information updated in 2014). In this context, as our intention is to answer questions of both compliance to IFRS 13 new disclosure requirements for investment properties and disclosure quality in comparison with the previous regulation (IAS 40), our next step was to check if all the constituents of the European index reported exclusively based on IFRS standards, i.e. without a mix with local rules, both in 2012-13 and in 2013-14. This criteria excluded three companies based in Turkey and one in Sweden.

Considering that the authors of this research are only fluent in three languages, Portuguese, Swedish and English, we had also to make sure that the companies in question presented annual reports in one of these languages for the years of 2012-13 and 2013-14. This procedure further eliminated eight companies. Moreover, due to the fact that we are also interested in understanding possible differences between different legal origin groups of countries in Europe, a decision had to be made concerning the only constituent company from Russia. Besides the fact that only part of Russia is located in Europe, this country does not pertain any of the legal origin groups established by La Porta et al. (1998) and as only one company is listed as being from Russia, one could not say that it is representative enough to be separated in its own group. Therefore, one more company was excluded.

It was also possible to detect a number of companies that use the cost model as their main valuation tool for investment properties as well as there were a few companies that were not publicly listed in both years, making them subject to exclusion as well. Furthermore, the remaining companies were also checked for possible early adoption of IFRS 13, which could bring heterogeneity to the sample, but none were found, leaving us with a sample composed by 77 companies from 13 countries (see Appendix 1). The division of countries by origin, for our final sample, can further be seen in Appendix 2.

A summary of the performed sampling process is further detailed in Figure 9.
4.3. Operationalizing the measures

In order to measure the level of compliance and the disclosure quality that our sample display we have developed two separate approaches. The measure for compliance is a self-constructed index based on the observed and required items to be disclosed whereas the model used to measure disclosure quality is based on an adaptation of the model created by Beretta & Bozzolan (2008).

4.3.1. Measuring compliance

For the sake of measuring compliance, we will utilize a self-constructed index. After examining the disclosure requirements under IFRS 13, we have decided to disregard the demands for level 1 in the fair value hierarchy as for real estate companies, level 2 and 3 are used exclusively for this type of asset valuation as stated in the theoretical framework. Hence, this index is based on specific disclosure requirements under IFRS 13 for level 2 and 3 in the fair value hierarchy only. The following requirements as presented in figure 10 are the ones that will be included in our index:
Furthermore, what will be examined is whether each real estate company fulfills these requirements and if they provide information about the areas above. A score of 1 will be given for each requirement that a company satisfies while a 0 will be assigned if it is not. For real estate companies using level 2 and 3, the maximum scores are 4 and 6 respectively. The process can be illustrated through the following formula:

\[
COMP = \sum_{i=1}^{\text{items observed}_i} \frac{\text{items observed}_i}{\text{items required}} \times \frac{1}{\text{Total companies in the sample}}
\]

Where:
- \(COMP\) = The total compliance score (in %) for all real estate companies in our sample
- \(\text{items observed}_i\) = The items observed based on the requirements in figure 10 for company \(i\)
- \(\text{items required}\) = For level 2 and 3, respectively 4 and 6 items

### 4.3.2. Measuring disclosure quality

In the theoretical framework, three different models\(^6\) were presented that have all been developed with the objective to measure disclosure quality in corporate annual reports. It is clear that all models have their pros and cons, though for our research we believe that the most suitable one is the model developed by Beretta & Bozzolan (2008). The motivation for this choice lies behind the parameters that are used in order to measure the disclosure quality. As stated earlier in the theoretical framework, Beretta & Bozzolan

\(^6\) Despite the fact that the model developed by Sundgren et al. (2013) directly concerns real estate companies, its main focus is not the measurement of disclosure quality, but the investigation of which national and firm-level factors can explain the quality of the corporate disclosures investigated. Hence, it was not the best fit to answer our research question.
(2008) make a more clear division between quantity and quality and takes a step further by introducing the concept of richness as an addition to the quantity of disclosures. Based on previous work, we have decided to favor this model as we are certain that quantity in itself cannot solely measure quality. The original model that was developed by Beretta & Bozzolan (2008) has two elements that compose the quality measure: quantity and richness. Richness, on its turn, is further determined by two other factors: width and depth. These will now be explained more thoroughly.

Quantity is measured through a relative quantity index that takes into consideration the observed and the expected disclosed items for a specific company:

\[
RQT_i = D_i - \bar{D}_i
\]

Where:
- \( RQT_i \) = The relative quantity index for company \( i \)
- \( D_i \) = The observed disclosed items for company \( i \)
- \( \bar{D}_i \) = The estimated disclosed items for company \( i \)

After obtaining a relative quantity index Beretta & Bozzolan (2008) continues by standardizing the index. This is done in order to draw conclusions regarding how a specific company stands in relation to the other firms analyzed. More specifically, the each company’s score is compared to the maximum and minimum RQT displayed in the entire sample. It can be illustrated as follows:

\[
STRQT_i = \frac{\max_j RQT_j - RQT_i}{\max_j RQT_j - \min_j RQT_j}
\]

Where:
- \( STRQT_i \) = The standardized RQT for company \( i \)
- \( \max_j RQT_j \) = The maximum RQT displayed in the sample studied
- \( \min_j RQT_j \) = The minimum RQT displayed in the sample studied
- \( RQT_i \) = The relative quantity index for company \( i \)

When the quantity parameters have been determined Beretta & Bozzolan (2008) move on to richness. Richness (RCN) is further separated into width (WID) and depth (DEP). Width is then measured by calculating the coverage (COV) and dispersion (DIS). Coverage measures how many (in %) of the topics studied have in fact been filled in by information. While dispersion measures how concentrated the disclosures are.

\[
COV_i = \frac{1}{st} \sum_{j=1}^{st} INF_{ij}
\]

\[
DIS_i = \frac{\sum_{j=1}^{st} P_{ij} \ln P_{ij}}{\ln st}
\]

Where:
- \( COV_i \) = The coverage score for company \( i \)
- \( DIS_i \) = The dispersion score for company \( i \)
\( INF_{ij} = \) If company \( i \) discloses information about topic \( j \) a 1 is given, otherwise 0

\( P_{ij} = \) The number of information disclosed about topic \( j \) divided by the total number of disclosures by company \( i \)

\( st = \) Number of topics (or subtopics)

Width is then determined by averaging coverage and dispersion for each company:

\[
WID_i = \frac{1}{2} (COV_i + DIS_i)
\]

Where:

\( WID_i = \) The width for company \( i \)

In order to obtain the score for depth, there are three elements that must be calculated, namely: type of measure (\( TOM \)), economic sign (\( ES \)) and outlook profile (\( OTL \)). Type of measure takes into consideration the ratio that exist between the number of phrases that contain a measure either quantitative or qualitative and the amount of pieces of information under scrutiny. Economic sign is a measure that investigates the impact on actual or future performance of the disclosed item, in order to see the economic direction of the company. Lastly, the outlook profile is a measure that examines the time orientation of the information given and how prone the management is to take actions.

\[
TOM_i = \frac{1}{id_i} \sum_{j=1}^{id_i} TOM_{ij}
\]

Where:

\( TOM_i = \) Type of measure index for company \( i \)

\( id_i = \) The amount of phrases that are examined in the annual report for company \( i \)

\( TOM_{ij} = \) If a measure has been disclosed either qualitative or quantitative in phrase \( j \) in the annual report for company \( i \) a 1 is denoted, otherwise 0

\[
ES_i = \frac{1}{id_i} \sum_{j=1}^{id_i} ES_{ij}
\]

Where:

\( ES_i = \) The index for economic sign for company \( i \)

\( id_i = \) The amount of phrases that are examined in the annual report for company \( i \)

\( ES_{ij} = \) If the expected impact on performance has been disclosed in phrase \( j \) in the annual report for company \( i \)

Beretta & Bozzolan (2008) then sums together and take the average of the index for type of measure and economic sign for the company that is being examined. These two indexes is summed as they both have as its objective to study specific measurements. It can be illustrated as follows:

\[
MSR_i = \frac{1}{2} (TOM_i + ES_i)
\]

To the index above, the index for outlook profile is added. Afterwards a summation is carried out, of the measurement index and the index for outlook profile
\[
OTL_i = \frac{1}{2 \cdot id_i} \sum_{j=1}^{id_i} OTL_{ij}
\]

Where:

\(OTL_i\) = Index for outlook profile for company \(i\)
\(id_i\) = Number of fragments of information that company \(i\) have disclosed
\(OTL_{ij}\) = If the phrase \(j\) in the annual report of company \(i\) has provided any information regarding decisions, actions or programs is disclosed and it is forward-looking a 2 is denoted. If only information is given concerning the areas stated or if it is forward-looking a 1 is given. Otherwise the company receives a zero.

This concludes with the index for depth (\(DEP\)), which is the averaged sum of the indexes for measurement and outlook profile.

\[
DEP_i = \frac{1}{2}(MSR_i + OTL_i)
\]

Richness (\(RCN\)) is found for company \(i\) by taking the averaged sum of depth and width:

\[
RCN_i = \frac{1}{2}(WID_i + DEP_i)
\]

Finally, in order to reach the overall quality score for the company being studied, Beretta & Bozzolan (2008) calculates the averaged sum of the standardized relative quantity index and richness for company \(i\):

\[
QUALITY_i = \frac{1}{2}(STRQT_i + RCN_i)
\]

Where:
\(QUALITY_i\) = is the total quality score for company \(i\)

**Our model**

After having presented the original model that was developed by Beretta & Bozzolan (2008), we will now present our adaptation of this model. The one that will be used for this research when measuring disclosure quality for investment properties in real estate companies in Europe.

The reason behind the choice of making some alterations comes from the fact that the original model was developed with the intention to measure the disclosure quality for the whole annual report. Since we are only interested in examining a specific accounting standard, some parts of the original model would be extremely difficult if not impossible to measure. Nevertheless, we will maintain both elements of quality: quantity and richness.

In the following two figures, we present the items that will be scrutinized regarding the element of quantity. As we consider that both mandatory and voluntary elements have the possibility to increase the quality, both parts will be studied. Figure 11 illustrates the items
examined for 2012-13 and IAS 40 and figure 12 will show the same information for 2013-14 and IFRS 13.

<table>
<thead>
<tr>
<th>Mandatory items</th>
<th>Voluntary items</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Method is given</td>
<td>• Vacancy/occupancy rate is given</td>
</tr>
<tr>
<td>• Assumptions, factors and/or support influencing the valuation is explained</td>
<td>• Inflation rate is given</td>
</tr>
<tr>
<td>• Reconciliation between opening and closing balances for investment properties is given</td>
<td>• Real estate yield/return is given</td>
</tr>
<tr>
<td>• Information about the use of independent appraisers is given</td>
<td>• Trend in rental income</td>
</tr>
<tr>
<td></td>
<td>• Fair value breakdown into geographical regions and/or segments</td>
</tr>
<tr>
<td></td>
<td>• Sensitivity Analysis</td>
</tr>
</tbody>
</table>

Figure 11: Mandatory and voluntary disclosures for 2012-13

The choice of examining these specific items reflects the disclosure requirements present in IAS 40 until the end of 2012, i.e. before the mandatory implementation of IFRS 13, as was described in the theoretical framework. We believe that the mandatory items laid out above are the ones that could have the greatest impact on the quality for the disclosures presented in the annual reports for 2012-13 for several reasons. Firstly, information regarding methods and assumptions are essential to be able to understand how a company manages its investment properties and it increases the transparency between the company and outside parties. Secondly, the reconciliation between opening and closing balances in fair value allows stakeholders to better comprehend where the changes in fair value for investment properties originate (e.g. acquisitions, disposals, revaluations, etc.) and, thirdly, providing information about whether the company has used an independent appraiser or not may enhance the perception of credibility regarding the values reported. A mandatory item that we decided not to include, however, was ‘highest and best use’ as information regarding this criteria is only required when the use of the property is not its highest and best, therefore it is extremely difficult to measure.

The voluntary items, on the other hand, were determined using previous literature and through analyzing a few annual reports in order to find out what information that can be disclosed in relation to valuation of investment properties. The first three voluntary items and the final one were taken directly from the working paper by Sundgren et al. (2013). We found them relevant as the inflation rate, yield and vacancy/occupancy rate have the possibility to affect the fair value and the parameters that ultimately are parts of the fair value calculations. A sensitivity analysis could, furthermore, be a good way of understanding how sensitive the fair value is in relation to specific assumptions used in the calculations. The other two voluntary items concerning trends and fair value breakdowns were found in some annual reports and we do believe that this type of information could be useful for investors in assessing the future prospects for a particular
company. In this context, we have defined “trend” as showing rental income/expenses for at least three consecutive years, either historically or expected rental income/expenses for the future. It could also be of interest to understand, either geographically or by segment, what areas are the ones that are contributing the most to the fair value of the investment properties.

After the implementation of IFRS 13, the mandatory disclosure requirements have changed and the examined items have, therefore, also been altered, though the voluntary items are basically the same with only a few variations. This can be seen below in Figure 12.

<table>
<thead>
<tr>
<th>Mandatory items</th>
<th>Voluntary items</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Mention hierarchy level</td>
<td>• Vacancy/occupancy rate is given</td>
</tr>
<tr>
<td>• Mention valuation technique</td>
<td>• Inflation rate</td>
</tr>
<tr>
<td>• Show reconciliation between opening and closing balances</td>
<td>• Real estate yield/return is given</td>
</tr>
<tr>
<td>• Mention inputs used</td>
<td>• Trend in rental income is given</td>
</tr>
<tr>
<td>• Level 3: Explain valuation process</td>
<td>• Fair value breakdown into geographical regions and/or segments</td>
</tr>
<tr>
<td>• Level 3: Sensitivity Analysis</td>
<td></td>
</tr>
</tbody>
</table>

Figure 12: Mandatory and voluntary disclosures for 2013-14

As stated in Chapter 3, a major implication from the implementation of IFRS 13 was the introduction of a fair value hierarchy. As this was the most extreme change, the new and extended mandatory disclosure requirements are mostly related to this hierarchy. Several disclosure requirements usually only apply to level 3, however, as level 2 is sometimes also used, we have determined the mandatory items by examining IFRS 13 and having both levels in mind. Moreover, even though there are some clear differences between the mandatory items for 2012-13 and 2013-14, the emphasis is still on the method(s) used and the information given about the valuation process with only small variations. Considering the voluntary items, we have decided to examine the same items as for 2012-13, however as a sensitivity analysis is mandatory under IFRS 13, this requirement is now located under mandatory items instead of voluntary items.

In regards to our model, based on the information provided above, quantity will be measured by using the relative disclosure index. Due to the fact that this index will include both mandatory and voluntary disclosures, we have constructed two separate indexes instead:

\[
RQT_{Mi} = D_{Mi} - \bar{D}_M
\]

\[
RQT_{Vi} = D_{Vi} - \bar{D}_V
\]
Where:
\( RQT_{Mi} \) = The relative quantity index for mandatory disclosed items for company \( i \)
\( D_{Mi} \) = Observed mandatory items for company \( i \)
\( \hat{D}_M \) = Required mandatory items to be disclosed
\( RQT_{Vi} \) = The relative quantity index for voluntary disclosed items for company \( i \)
\( D_{Vi} \) = Observed voluntary items for company \( i \)
\( \hat{D}_V \) = Expected voluntary items for company \( i \)

For the mandatory items one point is given for each item that information is provided about. For the voluntary part, the same point system applies, nonetheless it is possible for a real estate company to receive two points per item if they demonstrate an extra effort in trying to explain or illustrate a particular area. When the relative quantity index for both mandatory and voluntary items have been calculated, they will be added to each other and will result in a total relative quantity index (\( RQT_{Ti} \)) for each specific company as illustrated below:

\[
RQT_{Ti} = RQT_{Mi} + RQT_{Vi}
\]

A standardization will then be completed in order to determine how a specific real estate company stands in relation to the other ones in our sample, in regards of quantity of disclosures. We will use the formula as presented by Beretta & Bozzolan (2008):

\[
STRQT_i = \frac{\max_{Tj} RQT_{Tj} - RQT_{Ti}}{\max_{Tj} RQT_{Tj} - \min_{Tj} RQT_{Tj}}
\]

Where:
\( STRQT_i \) = The standardized relative quantity index for company \( i \)
\( \max_{Tj} RQT_{Tj} \) = The maximum relative quantity index displayed in our sample
\( \min_{Tj} RQT_{Tj} \) = The minimum relative quantity index displayed in our sample
\( RQT_{Ti} \) = The relative quantity index for company \( i \)

Continuing with measuring the richness of the disclosures, we have decided to only take into consideration width for this specific purpose. This decision was reached as a result of only one standard being studied and many of the parameters Beretta and Bozzolan (2008) used to measure depth would be difficult to adapt to our research as the information studied is very limited. The first part of “width” is used to determine coverage and considers the amount of topics that a real estate company have been able to provide information about. It will be measured as follows:

\[
COV_i = \frac{\text{topics covered}_i}{\text{Total topics examined}}
\]

Where:
\( COV_i \) = The coverage score for company \( i \)

Topics covered and total topics examined in this context refer to specific topics that we have chosen to study in relation to coverage. As both the annual reports for 2012-13 and 2013-14 will be our focus, it will require us to examine topics both under IAS 40 (for 2012-13) and IFRS 13 (for 2013-14). When scrutinizing the disclosures regarding investment properties, the following topics displayed in Figure 13 will be examined.
When studying coverage for each company in our sample, our objective will be to observe if the real estate companies have mentioned any type of information in relation to the topics above. For each topic that has been covered a 1 will be given, otherwise, 0. The total score that can be reached is 5 for IAS 40 and 7 for IFRS 13. The choice of these topics comes directly from the items examined, illustrated in figure 11 and 12.

After the “coverage” calculation, the next step will be to calculate “dispersion” as:

$$DIS_i = -\frac{\sum_{j=1}^{st} P_{ij} \ln P_{ij}}{\ln st}$$

Where:
- $P_{ij}$ = The number of information disclosed about topic $j$ divided by the total number of disclosures by company $i$
- $\ln$ = The natural logarithm
- $st$ = Number of subtopics

The measure for dispersion shows more deeply how much detailed information a company has given in relation to a specific topic. For the sake of calculating dispersion we have determined a number of subtopics that relate back to coverage and the topics in figure 13. For each subtopic that a company provides some type of information about 1 point is assigned to said company, otherwise no points are granted. The subtopics related to each topic for 2012-13 and IAS 40 are presented in Figure 14.
The subtopics were chosen on the basis of the topics already determined for coverage. Concerning specifically the voluntary items, we screened a few of the annual reports to enhance our understanding of what information real estate companies are inclined to provide. This screening made it possible to discover what information is more often given in relation to the topics above. Afterwards, a selection was made based on the information found.

Furthermore, in relation to topic 1A, it is crucial for outside stakeholders to understand how a company have reached their fair values and for this, as IAS 40(2012) points out, the method and assumptions should be given. Nonetheless, although such information is helpful to the reader of the financial statements in understanding the valuation process, it can be hard to understand how the valuation methods and assumptions relate to each other. Therefore, subtopics concerning further clarifications of these aspects were created and could afford the companies extra points in the disclosure quality calculations (see Figure 14).

Regarding topic 2A, although a reconciliation of opening balance (OB) and closing balance (CB) in fair value is a mandatory requirement in IAS 40, it only provides the fair value change occurred in the period in question in comparison to the previous fiscal year. However, such disclosure does not in itself allows the reader to understand how the fair

---

### Figure 14: Subtopics for 2012-13 under IAS 40

| Topic 1A: Valuation & Assumptions | • Subtopic 1A.1: Explain the method used  
| | • Subtopic 1A.2: State the model used  
| | • Subtopic 1A.3: Show how the factors/assumptions affect the valuation |
| Topic 2A: Reconciliation between OB and CB | • Subtopic 2A.1: Changes in fair value for more than two periods |
| Topic 3A: Use of Appraiser | • Subtopic 3A.1: How often a valuation is made  
| | • Subtopic 3A.2: External appraiser report  
| | • Subtopic 3A.3: Name of external appraiser  
| | • Subtopic 3A.4: More than 1 external appraiser |
| Topic 4A: Sensitivity Analysis | • Subtopic 4A.1: At least two scenarios are given  
| | • Subtopic 4A.2: Four or more scenarios are given  
| | • Subtopic 4A.3: Table format |
| Topic 5A: Rental income/expenses | • Subtopic 5A.1: Future expectations  
| | • Subtopic 5A.1: Tenant composition (in % of rental income) |
values of investment properties have changed historically or for a specific region, which could help outside stakeholders to, for example, evaluate the solidity of the company’s investments. Therefore, if a company provided extra information in this regard (e.g. changes in fair value for more than two periods or a division of the changes in fair value between different regions where the company operates), it was considered to fulfill the subtopic on changes in fair value.

Furthermore, when examining IAS 40, we noticed that there is a demand for companies to give information about the use of external appraisers (topic 3A), both if they have used one or not. However, some companies seem to be more open in sharing these types of details, hence the decision was made to explore this further by looking for information concerning timing, name of appraiser/appraising company, appraiser’s report and whether more than one external appraiser was employed.

Also, as stated earlier, a sensitivity analysis (topic 4A) was not required under IAS 40 yet it was already presented by many companies in the period before the implementation of IFRS 13, where it became the rule. Nonetheless, because even IFRS 13, later on, does not make clear what constitutes a sensitivity analysis or how it should be built, we noticed in a preliminary assessment of the sample that the degree of variability of the sensitivity analyses presented was very high. On the other hand, some elements presented in this context could be seen as providing a broader understanding of how certain factors could affect the valuation process in the analyzed companies, these are the amount of scenarios provided and how they are illustrated (see Figure 14). Note that, in order to maintain the consistency between 2012-13 and 2013-14, a sensitivity analysis, in the context of this research, is interpreted as the quantitative presentation of how the variability of different inputs can affect the fair value calculations for investment properties.

Finally, the last topic concerns the information provided on rental income/expenses (topic 5A) as this factor tend to be one of the main inputs in the fair value calculation. In this context, we mostly observed disclosures related to future expectations and tenant composition. To know how a company looks upon the future in relation to their rental income could help outside stakeholders to assess the stability of the corporate revenue stream and consequently, of the fair values of the main assets in a real estate company’s balance sheet, for example. Furthermore, details regarding the tenants become especially important when a few tenants represent a major part of a company’s rental income and, therefore, information in this regard could allow the reader a better understanding of how the loss of an important tenant could affect the revenues in the company and, ultimately, the fair value of investment properties.

Regarding the subtopics for 2013-14, only a few changes have been made in comparison to 2012-13. Topic 1A is substituted by topics 1B, 2B and 3B (see figure 15), which directly relate to the new disclosure requirements brought up by IFRS 13 concerning hierarchy levels, valuation technique and inputs & valuation process. Under these circumstances, although companies are only obliged to point out which hierarchy levels their investment properties belong to, many firms chose to provide a definition of IFRS 13 hierarchy, which we suppose was due to novelty of this classification to the users of financial statements. Therefore, such clarification of the levels’ meanings as well as an explanation on why the valued properties were considered to pertain the reported level were included as subtopics to topic 1B. Based on the same reasoning that these information could provide a better understanding of the fair value determination, similar
subtopics, regarding the definition of the used valuation techniques and the reason why specific techniques were chosen, are a part of topic 2B. Furthermore, topic 3B related to the use of inputs and the valuation process encompasses the possible presentation of common inputs used in the fair value calculations, the explanation of how these inputs influence the valuation (positively/negatively) and the rendition of how the valuation model used is constructed. Topic 4B (reconciliation of OB and CB), on its turn, remains unaltered in comparison to topic 4A.

Moreover, as the use of an independent appraiser was not an item in the quantity part of the index for 2013-14, due to the fact that we intended to examine the impact of IFRS 13 only (such requirement is still mandatory, however solely under IAS 40), we decided to include information on appraisers when examining dispersion instead. Consequently, although very similar to the subtopics used for 2012-13, one extra subtopic was added under the “use of appraiser” topic (now topic 5B).

Similarly, in regards to topic 6B (sensitivity analysis), another subtopic has been added: whether any other input than the most common one (discount rate) is given. As the discount rate is presumably already presented by every company when satisfying the requirement on information related to the valuation process, the rendition of another input used brings the reader closer to being able to reconstruct the steps the firm used to determine fair value. Consequently, it was decided that, if a company shows the sensitivity of another parameter besides the discount rate, they will receive an extra point. Further, concerning the “rental income/expenses” topic (now topic 7B), the associated subtopic remains the same.
For the subtopics for both 2012-13 and 2013-14 it is possible to receive two points for each subtopic fulfilled if the description is done extremely well, otherwise one point is given and if no information is provided a zero is denoted.

When the score for coverage and dispersion have been reached, it is possible to calculate width by averaging the sum of the two in the following way:

\[ WID_i = \frac{1}{2}(COV_i + DIS_i) \]

Where:
\( WID_i \) = The width for company \( i \)
\( COV_i \) = The coverage score for company \( i \)  
\( DIS_i \) = The dispersion score for company \( i \)  

As we have decided to exclude the depth element, richness will only consist of width and it is therefore equal to richness as can be seen below.

\[ WID_i = RCN_i \]

The last and final step will be to calculate the overall disclosure quality for each real estate company. This will be possible by averaging the sum of the standardized relative quantity index (\( STRQT \)) and richness (\( RCN \)):

\[ QUALITY_i = \frac{1}{2}(STRQT_i + RCN_i) \]

Where:
\( QUALITY_i \) = is the total quality score for company \( i \)

### 4.4. Statistical tests applied

In order to answer the research sub-questions and ultimately our main research question, a number of statistical tests are applied in chapter five. Such tools help us to test our different hypotheses and sub-hypotheses, and eventually to draw conclusions about our sample. In this section, we will shortly introduce the statistical tests that we were used in our sample analysis.

#### 4.4.1. Normality tests

Our first step in order to decide which tests were the most appropriate to analyze our sample was to understand how the collected data is distributed as parametric tests, such as the t-test, usually assume a normally distributed data (Baipaj, 2010, p. 678). Besides plotting the data in histograms and boxplots, the so-called Shapiro-Wilk’s test was also applied to assess if the normality assumption was satisfied in this context.

**Shapiro-Wilk’s test**

This test was invented by Shapiro and Wilk in 1965 and its function was to test for the normality in a sample (Shapiro & Wilk, 1965, p. 602). Though there are several other tests within the same area, the Shapiro-Wilk’s test has proven to be superior when it comes to testing for normality as it is highly sensitive for non-normality (Shapiro et al., 1968, p. 1366).

#### 4.4.2. Homogeneity of Variances test

Additionally to the normality assumption, parametric tests like the ANOVA and t-tests are based on the premise that “the variance of the dependent variable is the same in each population” (Kleinbaum et al., 2014, p.485). If there are significant differences of variances in the data, the ANOVA test can fail to identify relationships between the analyzed groups, according to Ellison et al. (2009, p.80). Therefore, it becomes necessary to also test if this condition is satisfied. A common tool used for this purpose is the Levene’s test.
Levene’s test

The Levene’s test assesses “whether there is sufficient evidence to conclude $k$ variances from sample sizes $n$ are equal” and allows different sample sizes (Kubiak & Benbow, 2009, p. 269). The null hypothesis being tested states that the variances between different groups are the same, i.e. not significantly different from each other.

The results of this test are usually provided with the results of a one-way ANOVA and are obtained “by computing, for each case, the absolute differences from its cell mean and performing a one-way analysis of variance of these differences” (Martin & Bridgmon, 2012, p. 117). Under these circumstances if the resulting $p$-value is lower than a pre-established critical value (usually .05) then it’s possible to reject the null hypothesis (Kubiak & Benbow, 2009, p. 269), i.e. the mean variances from the populations from which the sample groups were taken are heterogeneous and, consequently, a nonparametric test might have to be applied instead.

4.4.3. Comparing means

Saunders et al. (2012, pp. 503-504) states that there are three different ways in which central tendency can be measured (mean, median and mode), though the mean is the one that is mostly used. Our hypotheses reflect that fact and, therefore, in order to assess them some specific tests are performed.

As we are investigating how the average value for the compliance scores in the sample behaves against a pre-established value of 75% and the standard deviation of the population is unknown, a one-sample t-test is used to test Hypothesis 1. On the hand, to compare the quality scores of the two different periods being analyzed (Hypothesis 2), i.e. the same sample is measured twice, a paired-samples t-test is applied, while to compare the quality scores of different legal origin groups within the same sample measured in 2013-14 only (Hypothesis 3), an analysis of variances (ANOVA) seems to be the best solution.

One-sample t-test

According to Salkind (2010, p.1556), a one-sample t-test has its best use when the researcher wants to compare the sample mean to a certain test value, which, in our case, is equal to 75%. Furthermore, although being very similar to a Z-test, the t-test does not assume that the standard deviation of the population is known (Salkind, 2010, p.1556), which makes it ideal to test Hypothesis 1.

The resulting t-value obtained with this test can be interpreted in light of the associated p-value, which represents the probability that the found t-value is the fruit of mere chance, considering that the null hypothesis to be true (Salkind, 2010, p.1557). A low p-value in this context (e.g. >.05) tells us that the obtained results are only chance values and, therefore, the mean of this population is not equal to the test value, according to Salkind, (2010, p.1557).
Paired-sample t-test

Matthews & Kostelis (2011, p. 244) recommends the use of a paired-sample t-test when “examining differences between two conditions when the same participants are measured twice in a repeated-measures research design”. In this research, the “conditions” are the quality scores for 2012-13 and for 2013-14 and the “participants” are the real estate companies being analyzed. As the composition of the sample is exactly the same for both periods, we are basically comparing the results obtained by the companies before and after the implementation of IFRS 13 in a repeated-measures design manner, consequently making this test relevant to assess Hypothesis 2.

The interpretation of this test’s results is very similar to the one previously described to the one-sample t-test. However, a low p-value in this case signals that the difference in disclosure quality scores is statistically relevant.

One-way ANOVA

The one-way ANOVA is often used to test the difference in the means among more than two groups (Chalmer, 1987, p. 164). According to Chalmer (1987, p.164), the concept of “one-way” is derived from the fact that this test only takes into consideration one type of grouping for the data. In our case, the sample was sub-divided in groups based on the legal origin of the country the company comes from, i.e. English, French, German and Scandinavian origin. Moreover, besides the previously discussed assumptions of normality and variance homogeneity among the populations being compared, the one-way ANOVA also requires the observations in the sample to be independent from each other and values of the dependent variable (for us, disclosure quality) to be recorded for each individual in the sample (Kleinbaum et al., 2014, p. 485).

Furthermore, this test utilizes the so-called F-statistic, which is a result of the variance between groups divided by the variance within groups (Karris, 2003, p.193). The product of this calculation is associated with a corresponding p-value, which, similarly to a t-test, will represent a significant difference between means only when lower than the adopted significance level.

4.4.4. Post-hoc tests

Although enough to answer Hypothesis 3, the one-way ANOVA is a two-tailed test, which means that it only investigates if a difference between group means exist but does not details between which groups or in which direction (Chalmer, 1987, p. 164). Consequently, the aforementioned test is insufficient to assess our proposed sub-hypotheses. In order to find out which group means are significantly different from each other, multiple comparisons tests have to be performed after the ANOVA. Two variations of the Tukey’s test were then used for this purpose.

Tukey-Kramer Test

This test is built in a similar way to the traditional Tukey’s Honestly Significant Difference (HSD) test, but it was adapted to assess different sample sizes (LeBlanc, 2004, p.264). Further, through such test we can compare the mean value for one group with each other mean values being investigated. The difference between each pair of means results in a t-value that is then compared to a critical t-value in a calculation similar to the
one performed for the Tukey’s HSD test, the only difference being how to determine the critical value in the Tukey-Kramer version of the test (Holmes et al., 2011, p. 283). Taking into consideration its similarities with the HSD test, the test in question can also be considered a conservative pair-wise comparison test (De Muth, 2014, p. 248) and, therefore, may fail to detect significant mean differences.

**Tukey’s-b (WSD)**

Another adaptation of the Tukey’s HSD test is the so-called Tukey’s Wholly Significant Difference (WSD) test. The Tukey’s-b test, how it is also called, is a “less conservative stepwise procedure” as it is the product of the averaging between the results of the Tukey’s HSD test and the Newman-Keuls test (De Muth, 2014, pp. 250-251). Therefore, this test tends to be more sensitive to differences between a pair of means.
5. EMPIRICAL FINDINGS AND ANALYSIS

In this chapter we will present our findings and use statistical tests to test the hypotheses. Firstly, the focus will be descriptive statistics where we will examine the quality scores reached and if any relationship exist between the different variables studied. Secondly, the hypotheses in relation to compliance, disclosure quality and quality between the four origins will be answered. This will be performed by testing for normality and significance amongst others.

5.1. Descriptive and Summary Statistics

In this first section we will present the descriptive and summary statistics where the compliance scores as well as the quality scores will be analyzed in relation to firm size, leverage and profitability.

5.1.1. One sample, two measures: before and after IFRS 13

In order to obtain a broader perspective on our sample, composed by a total of 77 real estate companies, general data concerning firm size, leverage, profitability and chosen audit firm was collected with the help of DataStream and the companies’ annual reports. As previously discussed in section 3.2.2, these firm level factors are often considered to have a great impact on firms’ disclosures, especially concerning the amount of corporate information made public (e.g. Ahmed & Courtis, 1999, Cooke, 1989; Wallace et al., 1994). Therefore, we became interested in examining the relationship between such variables and compliance with IFRS 13 disclosure requirements, and, also, overall disclosure quality. The descriptive statistics for the measures of firm size, leverage and profitability can be seen in the table below:

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm Size in 2012-13</td>
<td>77</td>
<td>€163,35</td>
<td>€16,782,50</td>
<td>€1,579.09</td>
<td>€2,266.32</td>
<td>5136212.51</td>
</tr>
<tr>
<td>Debt-to-equity ratio in 2012-13</td>
<td>77</td>
<td>13.23</td>
<td>256.57</td>
<td>113.66</td>
<td>61.78</td>
<td>3817.26</td>
</tr>
<tr>
<td>ROE in 2012-13</td>
<td>77</td>
<td>-14.88</td>
<td>36.82</td>
<td>6.01</td>
<td>9.13</td>
<td>83.37</td>
</tr>
<tr>
<td>Firm Size in 2013-14</td>
<td>77</td>
<td>€242,19</td>
<td>€18,110.96</td>
<td>€1,774.72</td>
<td>€2,498.64</td>
<td>6243205.76</td>
</tr>
<tr>
<td>Debt-to-equity ratio in 2013-14</td>
<td>77</td>
<td>19.87</td>
<td>236.91</td>
<td>104.39</td>
<td>56.99</td>
<td>3248.10</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>77</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Firm size is, in this context, represented by the market capitalization of the company, the amount of leverage by the corporate debt-to-equity ratio and profitability by return on equity. Under these circumstances, by analyzing the frequencies of the first variable for both the period immediately before the implementation of IFRS 13 and the first year of mandatory adoption of such standard, it’s possible to observe that our sample includes a wide range of firm sizes (from €163,35 to €16,782,50 in 2012-13 and from €242,19 to €18,110.96 in 2013-14), displaying a large spread of values around the
mean (Moore et al., 2011, p.38) as its standard deviation reached Me2.266,32 in 2012-13 and was even higher in 2013-14. Although such statistics might seem undesirable at first glance, the variability in firm sizes serves the purpose of our study as we are trying to draw a picture of an entire industry. Besides, as demonstrated in tables 2, 3 and 4, no significant correlation was found between market capitalization and disclosure compliance (p-value = .725) neither between this measure of firm size and the disclosure quality scores (p-value \textsubscript{IAS40} = .524 & p-value \textsubscript{IFRS13} = .257) obtained in both observed periods and, therefore, will not impact the variability of these measurements.

Additionally, in spite of the fact that the lack of relationship, especially between firm size and disclosure quality, seems to negate the previous findings of Ahmed & Courtis (1999), which connected larger firms with a greater quantity of disclosures, it’s vital to remember that our measurement of quality takes into consideration more than just the absolute amount of disclosures and considers only information pertinent to the guidelines of IFRS 13 on fair value of investment properties.

### Table 2: Correlation between Compliance Levels and firm-level factors

<table>
<thead>
<tr>
<th>Compliance levels</th>
<th>Pearson Correlation</th>
<th>Debt-to-equity ratio in 2013-14</th>
<th>Return on equity in 2013-14</th>
<th>Firm Size in 2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>.160</td>
<td>-.070</td>
<td>.041</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.165</td>
<td>.543</td>
<td></td>
<td>.725</td>
</tr>
<tr>
<td>N</td>
<td>77</td>
<td>77</td>
<td>77</td>
<td>77</td>
</tr>
</tbody>
</table>

### Table 3: Correlation between Quality Scores (IAS 40) and firm-level factors

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>.311**</td>
<td>-.044</td>
<td>.074</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.006</td>
<td>.705</td>
<td></td>
<td>.524</td>
</tr>
<tr>
<td>N</td>
<td>77</td>
<td>77</td>
<td>77</td>
<td>77</td>
</tr>
</tbody>
</table>

### Table 4: Correlation between Quality Scores (IFRS 13) and firm-level factors

<table>
<thead>
<tr>
<th>Quality score IFRS 13</th>
<th>Pearson Correlation</th>
<th>Debt-to-equity ratio in 2013-14</th>
<th>Return on equity in 2013-14</th>
<th>Firm Size in 2013-14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>.267</td>
<td>-.051</td>
<td>-.131</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.019</td>
<td>.660</td>
<td></td>
<td>.257</td>
</tr>
<tr>
<td>N</td>
<td>77</td>
<td>77</td>
<td>77</td>
<td>77</td>
</tr>
</tbody>
</table>

Concerning the debt-to-equity ratios obtained in the sample, a slight decrease in the average corporate leverage can be seen (from \( \mu_1 = 113.66 \) in 2012-13 to \( \mu_2 = 104.38 \) in 2013-14), which could possibly indicate that some companies raised more equity during the period, for example. In this context, a significant positive correlation (\( r_{\text{IAS40}}(75) = .311 \), p-value=.006 and \( r_{\text{IFRS13}}(75) = .267 \), p-value=.019) can be found between this leverage measure and the quality scores both before and after IFRS 13 as attested by Tables 3 and 4, which could be interpreted as an increase in leverage being connected
with an increase in disclosure quality, although such relation is weak (both correlations are under .4). Therefore, this positive relationship falls in line with existing literature (Iatridis, 2011), which associates better disclosures with high levered firms as a way to decrease information asymmetry with creditors.

In regards to the profitability measure based on the return on equity ratios, our sample companies achieved a better average profitability in 2013-14 than in the year before ($\mu_1=6.01$ to $\mu_2=9.25$) based on a slightly lower spread (see Table 1). On the other hand, no significant correlation was found between profitability and compliance or disclosure quality as opposed to Lang & Lundholm (1993, p. 251) findings about more profitable companies disclosing more information. At the same time, besides our quality scores being based on other measures beyond disclosure quantity as previously discussed, Lang & Lundholm (1993, p. 251) also reveal that their results only hold under the condition of a company perceiving the information asymmetry between managers and shareholders to be high.

Lastly, information about which audit firm was responsible for the overview of each company’s accounts was also collected. Due to the fact that previous studies mainly focused on the possible differences between companies audited by the Big 4 audit firms (PWC, Deloitte, EY and KPMG) in relation to smaller firms (e.g. Patton & Zelenka, 1997; Ahmed & Courtis, 1999; Sundgren et al., 2013), we decided to aggregate our data in a binary fashion where 1 was assigned to companies that are audited by one of the Big 4 audit and 0, to companies that employed other audit firms.

In 2012-13, only 7.8% of the analyzed companies were audited by smaller audit firms while in 2013-14, this percentage fell to 5.2% (see Appendix 3). Under these circumstances, due to the fact that the great majority of the companies in our sample employed one of the Big 4 audit firms in both of the periods analyzed, a comparison between these two groups could only provide a distorted description of the possible impact different audit firms may have on disclosure quality and compliance. Based on this perception, we refrained from subdividing the sample in that manner for the performance of statistical tests.

5.1.2. Sub-question 1: Compliance Levels

For real estate companies in Europe, what is the level of compliance with IFRS 13 fair value disclosure requirements for investment properties?

After collecting information relative to which of the new disclosure requirements regarding the fair value of investment properties were effectively applied by the sample companies in their annual reports for 2013-14, our findings show an average compliance score of 92.42% with a low variance of .010 in the first year of mandatory implementation of IFRS 13. Such result expresses a high compliance rate overall with little variability between the real estate companies, as can be seen in Table 5 below.

| Table 5: Descriptive Statistics for compliance scores 2013-14 |
|------------------|--------|--------|--------|--------|---------|--------|
|                  | N      | Minimum| Maximum| Mean   | Std. Deviation | Variance |
| Compliance       | 77     | .667   | 1.000  | .92423 | .099513         | .010    |
| Valid N (listwise) | 77     |        |        |        |                |         |
During the analysis of the annual reports for the year in question, it was possible to notice that many companies went to great lengths to make clear which changes were brought up by IFRS 13, some even dedicating a whole note specifically to the disclosure of additional aspects of fair value estimation for investment properties. With very few exceptions, the real estate companies seemed very deliberate in their efforts to satisfy the new requirements, often even quoting parts of the standard. Moreover, 5 of the 6 disclosure requirements examined were satisfied by over 95% of the analyzed firms, with 100% of the reports mentioning which inputs were used in the valuation process for determining investment properties’ fair value.

However, the aforementioned good results did not extent themselves to the requirement relative to the presentation of a sensitivity analysis\(^7\) on the quantitative impact the change in input factors has on the fair value of investment properties. In this context, considering that all sample companies had at least some investment properties valued based on the level 3 of IFRS 13 hierarchy, over 30% of the companies failed to fulfill this demand, some of those by bluntly ignoring this part of the standard while others by barely presenting one scenario that could affect fair value. The lack of specifications present in IFRS 13 regarding what constitutes a sensitivity analysis seem to have confused many companies. The variability in both the format of and the amount of scenarios present in this sort of analysis was considerable. Table 6 details the compliance levels achieved in each category investigated.

Table 6: Percentage results for Compliance with IFRS 13

<table>
<thead>
<tr>
<th>Disclosure requirement</th>
<th>Compliance</th>
</tr>
</thead>
<tbody>
<tr>
<td>State the hierarchy level (1, 2 or 3)</td>
<td>98.7%</td>
</tr>
<tr>
<td>Mention the valuation technique</td>
<td>96.1%</td>
</tr>
<tr>
<td>Show reconciliation between OB and CB</td>
<td>98.7%</td>
</tr>
<tr>
<td>Mention inputs used</td>
<td>100%</td>
</tr>
<tr>
<td>Level 3 only: describe the valuation process</td>
<td>94.8%</td>
</tr>
<tr>
<td>Level 3 only: present a sensitivity analysis</td>
<td>66.2%</td>
</tr>
</tbody>
</table>

5.1.3. **Sub-question 2: Disclosure Quality before and after IFRS 13**

*Are there any differences in disclosure quality for investment properties in real estate companies in Europe, before and after the implementation of IFRS 13?*

As described in chapter 4, a self-developed quality index was created specifically to measure disclosure quality relative to the new requirements brought up by IFRS 13. In order to provide a longitudinal perspective to this measurement, a similar built index was applied to the same sample, however, based on information disclosed in the period before the implementation of the new standard, when all guidance concerning the reporting of fair value of investment properties was contained in IAS 40 (for more details on the construction and application of the indexes see section 4.3.2). After the careful application of the indexes, where 0 represents the lowest possible quality and 1, the highest, the following results were found:

\(^7\) For the particular definition of sensitivity analysis used in this study see Section 4.3.2.
Table 7: Quality Scores IAS40 vs. Quality Scores IFRS13

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Var.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality score (IAS40): 2012-13</td>
<td>77</td>
<td>.769</td>
<td>.059</td>
<td>.828</td>
<td>.479</td>
<td>.186</td>
<td>.035</td>
</tr>
<tr>
<td>Quality score (IFRS13): 2013-14</td>
<td>77</td>
<td>.804</td>
<td>.129</td>
<td>.933</td>
<td>.535</td>
<td>.171</td>
<td>.029</td>
</tr>
</tbody>
</table>

Insomuch as it can be observed in the table above, the quality scores relative to the period when only IAS 40 was the rule present a quite lower average value (mean) than the values collected after IFRS 13 implementation ($\mu_1 = .479 < \mu_2 = .535$). If such difference in means is statistically significant or not will be explored in section 5.2. Furthermore, the variability of results within the samples is higher in 2012-13, when we find a standard deviation of .186 in comparison with .171 in 2013-14, therefore a more homogeneous set of scores can be found after the mandatory application of IFRS 13 disclosure rules.

Concerning the relationship between these variables, we found that the higher the score a company reached in 2012-13, the higher its score were in 2013-14. This phenomenon can be explained by a reasonably high positive correlation between the quality scores for IAS 40 and IFRS 13 ($r_{(75)} = .624$, p-value=.000), which is significant at a $\alpha = 0.05$ as demonstrated in the table below.

Table 8: Correlation between Quality Scores 2012-13 and Quality Scores 2013-14

<table>
<thead>
<tr>
<th></th>
<th>Quality score IAS40</th>
<th>Quality score IFRS 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality score IAS40 (2012-13)</td>
<td>Pearson Correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>77</td>
</tr>
<tr>
<td>Quality score IFRS 13 (2013-14)</td>
<td>Pearson Correlation</td>
<td>.624**</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>77</td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

Moreover, relative to the main changes that contributed to an apparent improvement in disclosure quality after the implementation of IFRS 13, we can highlight the great increase in the percentage of companies that provide a sensitivity analysis relative to the fair value of investment properties. In 2013-14, companies providing a fair value sensitivity analysis in their annual reports represented 66.23% of the sample in comparison to only 40.26% the year before (Figure 16). However, although such increase cannot be ignored, it is important to keep in mind that IFRS 13 mandates companies to provide a sensitivity analysis for the fair value of their investment properties in contrast with no explicit demands from IAS 40. Therefore, 33.77% of non-compliance can still be considered a high failure rate for the companies studied.
Another distinctive change in reporting practices observed in our sample in 2013-14 was a greater focus on explaining how the valuation of the investment property portfolio is influenced by the inputs specified in the annual report. Such initiative could help outside stakeholders to understand the direction of the impact of the most important inputs on the reported fair values, e.g. a decrease in the discount rates used in the valuation would provoke an increase in fair values. Note, however, that in spite of sounding similar to a sensitivity analysis, this criteria refers to qualitative instead of quantitative indicators. In this context, we can observe that over 45% of the companies analyzed explained how the inputs for the valuation can affect the reported fair values for 2013-14 as opposed to only 3.9% in 2012-13 (Figure 17).
Furthermore, the analyzed annual reports for 2013-14 presented the reader with better historical information associated with fair value, including trends in rental income (i.e. rental income for at least three periods) and changes in fair values for at least the last three years. In this regard, over 50% of the reports for 2013-14 that were analyzed presented information about the evolution of rental income compared to only 30% of the reports for the previous period. Further, the presentation of historical changes in fair value greatly increased when compared to the 2012-13, from 7.8% to 32.5% after the implementation of IFRS 13. This type of information (although not mandatory) could be useful, for example, to outside investors trying to evaluate the performance of the property portfolio and, hence, positively impact the quality scores for the period.

5.1.4. Sub-question 3: Country differences

Are there any differences in quality between different countries in Europe in IFRS 13 related disclosures for investment properties in real estate companies?

Following the classification designed by La Porta et al. (1998), the sample was subdivided in 4 groups based on the country of origin of each company: English, French, German and Scandinavian origin. Although our sample was initially composed by 77 observations, only 75 companies were used in the analysis provided in this section. Such decision was taken based on the fact that two detected outliers were compromising the normality of the data distribution for the Scandinavian group, and, hence, contributing to an erroneous picture of the sample. After the elimination of the aforementioned values, our sample was composed by 29 English, 20 French, 15 German and 11 Scandinavian origin companies, as illustrated below:

Further, the country group that achieved the highest average quality scores ($\mu_S=.716$) was the Scandinavian, represented by companies from Sweden, Norway and Finland. Besides

---

8 Further discussion about the detection and effect of the outlier values is presented in section 5.2.3, where the normality tests before and after the outliers’ removal are provided.
presenting the best quality scores relative to disclosures for the fair value of investment properties, the Scandinavian origin group was also found to have the lowest variability of scores of the bundle ($\sigma^2_S=.006$). In second place came the German origin group with, however, a much more modest average value of .572 and variance of .018. These results fall in line with the findings of Sundgren et al. (2013, p.4) that had previously shown that Scandinavian and German origin real estate companies present a higher level of disclosures in comparison with French origin firms, for example.

In our research, notwithstanding, the French origin firms produced an average score of .566, which is only slightly under the level achieved by the German group. The greatest contrast between these two groups lies, on the other hand, on the higher score variability presented by the French origin companies ($\sigma^2_F=.030$), in fact the highest variance of all groups. Furthermore, although being only the third in the quality rank, one of the companies of this group attained the highest quality score of the sample, being only .67 points from the maximum score of 1.0.

Finally, in last place in this rank came the English origin companies, with one of them obtained the lowest quality score of the whole sample (min$_E=.129$). The focus of these companies’ reports was, surprisingly, not investment properties, which represent the majority of the assets of a real estate firm, but the remuneration of the members of the Board of Directors. We suppose this attitude could be explained by national law reporting demands, however, one could expect that as a member of the European Union, the UK (from where all the companies in the group were from) would also obey the spirit of IFRS to provide relevant information for economic decision making. Moreover, with the lowest mean scores of the sample ($\mu_E=.441$), the English origin firms contradicted existing literature that attributes better quality disclosures to firms from common law countries (Ball et al., 2000). In this context, the tables below present more detailed information about our findings.

*Table 9: English origin countries*

<table>
<thead>
<tr>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>.129</td>
<td>.712</td>
<td>.441</td>
<td>.147</td>
<td>.022</td>
</tr>
</tbody>
</table>

*Valid N (listwise) 29*

*Table 10: French origin countries*

<table>
<thead>
<tr>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>.285</td>
<td>.933</td>
<td>.566</td>
<td>.174</td>
<td>.030</td>
</tr>
</tbody>
</table>

*Valid N 20*

*Table 11: German origin countries*

<table>
<thead>
<tr>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>.334</td>
<td>.780</td>
<td>.572</td>
<td>.136</td>
<td>.018</td>
</tr>
</tbody>
</table>

*Valid N (listwise) 15*
Table 12: Scandinavian origin countries

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality score</td>
<td>11</td>
<td>.563</td>
<td>.822</td>
<td>.716</td>
<td>.080</td>
<td>.006</td>
</tr>
<tr>
<td>IFRS 13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Valid N (listwise) 11

5.2. Hypotheses testing: one sample t-test, paired-samples t-test & ANOVA

In this next part our hypotheses, that were given earlier, will be tested through several statistical tests. This will make it possible to either accept or reject the null hypotheses stated. Those answers that are reached will help us in answering our research question and sub-questions in the consecutive section.

5.2.1. Hypothesis 1: compliance with IFRS 13

H0: The average compliance level of real estate companies in Europe to IFRS 13 disclosure requirements for investment properties (μc) = 75%

H1: The average compliance level of real estate companies in Europe to IFRS 13 disclosure requirements for investment properties (μc) > 75%

H2: The average compliance level of real estate companies in Europe to IFRS 13 disclosure requirements for investment properties (μc) < 75%

Our first step in testing this hypothesis was to verify if our compliance related data satisfies the normality assumption associated with parametric test of means like the t-test for example (Tamhane & Dunlop, 2000, p. 254). Thus, as it can be seen in Table 13, the result of the Shapiro-Wilk’s test points to a non-normal data distribution in the sample, as the p-value was lower than .05.

Table 13: Shapiro-Wilk's Test of compliance levels

<table>
<thead>
<tr>
<th>Compliance levels</th>
<th>Shapiro-Wilk Statistic</th>
<th>df</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>.693</td>
<td>77</td>
<td>.000</td>
</tr>
</tbody>
</table>

Another difficulty with this data set was the fact that it is negative skewed (-.941), i.e. presents a bunching of values to the right and a long tail to the left (Saunders et al., 2012, p. 495). The main consequence of this asymmetric distribution is that the mean becomes different than the other measure of central tendency, the median and its negative skewness makes the mean lower than the median (Tamhane & Dunlop, 2000, p. 113). Although at first glance a non-normal and asymmetric samples does not seem like the best candidate for a parametric test, the Central Limit Theorem proclaims that the mean of a large sample (n>40) still follows a normal distribution nearly even if the raw data is not normal (Moore et al., 2011, p.108). Therefore, Moore et al. (2011, p.108) defends the use of t-tests for large samples even when the data is clearly skewed.
After applying a one-sample t-test to the sample against the hypothesized value of 0.75, we found that it’s possible to reject the null hypothesis \( H_0: \mu_c = 75\% \) at a 0.05 significance level, as p-value (.000) is lower than \( \alpha (.05) \). Further, in order to determine with of the alternative hypotheses could be accepted, we looked at the mean difference (.174). Due to the positive value assumed by this measure, we can accept the \( H_{1a}: \mu_c > 75\% \).

More details on the realized t-test can be found in Table 14.

**Table 14: One-sample t-test for compliance**

<table>
<thead>
<tr>
<th></th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean Difference</th>
<th>95% Confidence Interval of the Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>compliance</td>
<td>15.364</td>
<td>76</td>
<td>.000</td>
<td>.174</td>
<td>.1516 to .1968</td>
</tr>
</tbody>
</table>

Further, in order to verify our results we also checked the values for the mean and median (a more robust measure of center, according to Tamhane & Dunlop (2000, p. 113) against the hypothesized value of .75. In this context, the sample presents a mean of .924 and a median of 1, both values well above .75 as well as all quartile values (Table 15). Therefore, the t-test values can be confirmed and a high compliance level, established for the first year of mandatory implementation of IFRS 13.

**Table 15: Descriptive statistics II for compliance**

<table>
<thead>
<tr>
<th></th>
<th>Valid</th>
<th>Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>77</td>
<td>0</td>
</tr>
<tr>
<td>Mean</td>
<td>.9242</td>
<td></td>
</tr>
<tr>
<td>Median</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>Skewness</td>
<td>-.941</td>
<td></td>
</tr>
<tr>
<td>Std. Error of Skewness</td>
<td>.274</td>
<td></td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-.079</td>
<td></td>
</tr>
<tr>
<td>Std. Error of Kurtosis</td>
<td>.541</td>
<td></td>
</tr>
<tr>
<td>Percentiles</td>
<td>25</td>
<td>.8333</td>
</tr>
<tr>
<td>50</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>1.0000</td>
<td></td>
</tr>
</tbody>
</table>

5.2.2. **Hypothesis 2: quality scores before and after IFRS 13**

\( H_0: \mu_{DisQua\text{Before}} = \mu_{DisQua\text{After}} \)

\( H_{1a}: \mu_{DisQua\text{Before}} \neq \mu_{DisQua\text{After}} \)

In order to test this hypothesis, first we investigated the previously mentioned assumption on normality of the sample distribution so a parametric test could be applied. Once more the Shapiro-Wilk’s test is used, but this time we found the both the quality scores for IAS 40 and the quality scores for IFRS 13 are normally distributed as both p-values lie above the threshold of 0.05 (Table 16). Further, the skewness of the distribution was also checked for the two quality scores respectively and the results showed us approximately symmetric sample distributions with skewness values very close to zero as can be seen in
After the normality assumption was tested, the data was then submitted to a paired-sample t-test, considering that we measured the same sample at two time points. As previously described in section 5.1.3, the average quality score obtained by the sample companies in 2012-13 was .479 while, after the implementation of IFRS 13, the mean value increased to .535. The significance of this difference between means was established then by the t-test statistics, where $t(76) = -3.161$ with $p$-value (.002) inferior to .05 (Table 18), which allows us to reject the null hypothesis that $\mu_{\text{DisQua}_{\text{Before}}} = \mu_{\text{DisQua}_{\text{After}}}$. Therefore, our findings demonstrate that there is a significant disclosure quality difference before and after IFRS 13 implementation and the average values of both periods indicate an increase in quality for the year of 2013-14.

5.2.3. Hypothesis 3: quality scores between country groups (2013-14)

$H_0 : \mu_{\text{DisQua}_{\text{English}}} = \mu_{\text{DisQua}_{\text{French}}} = \mu_{\text{DisQua}_{\text{German}}} = \mu_{\text{DisQua}_{\text{Scandinavian}}}$

$H_a : \mu_{\text{DisQua}_{\text{English}}} \neq \mu_{\text{DisQua}_{\text{French}}} \neq \mu_{\text{DisQua}_{\text{German}}} \neq \mu_{\text{DisQua}_{\text{Scandinavian}}}$

Sub-hypothesis 3.1: $H_0 : \mu_{\text{DisQua}_{\text{French}}} = \mu_{\text{DisQua}_{\text{English}}}$

$H_a : \mu_{\text{DisQua}_{\text{French}}} \neq \mu_{\text{DisQua}_{\text{English}}}$

Sub-hypothesis 3.2: $H_0 : \mu_{\text{DisQua}_{\text{German}}} = \mu_{\text{DisQua}_{\text{English}}}$

$H_a : \mu_{\text{DisQua}_{\text{German}}} \neq \mu_{\text{DisQua}_{\text{English}}}$

Sub-hypothesis 3.3: $H_0 : \mu_{\text{DisQua}_{\text{Scandinavian}}} = \mu_{\text{DisQua}_{\text{English}}}$

$H_a : \mu_{\text{DisQua}_{\text{Scandinavian}}} \neq \mu_{\text{DisQua}_{\text{English}}}$
Sub-hypothesis 3.4: \( H_0: \mu_{\text{DisQua}_{\text{French}}} = \mu_{\text{DisQua}_{\text{German}}} \)
\( H_a: \mu_{\text{DisQua}_{\text{French}}} \neq \mu_{\text{DisQua}_{\text{German}}} \)

Sub-hypothesis 3.5: \( H_0: \mu_{\text{DisQua}_{\text{French}}} = \mu_{\text{DisQua}_{\text{Scandin}}}, \)
\( H_a: \mu_{\text{DisQua}_{\text{French}}} \neq \mu_{\text{DisQua}_{\text{Scandin}}} \)

Sub-hypothesis 3.6: \( H_0: \mu_{\text{DisQua}_{\text{German}}} = \mu_{\text{DisQua}_{\text{Scandin}}}, \)
\( H_a: \mu_{\text{DisQua}_{\text{German}}} \neq \mu_{\text{DisQua}_{\text{Scandin}}} \)

Due to the fact that hypothesis 3 involves the comparison of the means of four different legal origin groups (English, French, German and Scandinavian), the most reasonable choice to test it was to submit the data to an ANOVA test. Notwithstanding, two critical assumptions needed to be tested first in order to make sure that the distributions were all normal and present homogenous variances if compared to one another, otherwise an ANOVA could not be performed (Moore et al., 2011, p. 752). Under these circumstances, to check the normality of the data the Shapiro-Wilk’s Test was applied. The results of the normality test can be found in the table below:

<table>
<thead>
<tr>
<th>Quality score IFRS 13</th>
<th>Legal origin of the country the company is located in</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>df</td>
</tr>
<tr>
<td>English origin</td>
<td>.961</td>
<td>29</td>
</tr>
<tr>
<td>French Origin</td>
<td>.966</td>
<td>20</td>
</tr>
<tr>
<td>German Origin</td>
<td>.958</td>
<td>15</td>
</tr>
<tr>
<td>Scandinavian origin</td>
<td>.839</td>
<td>13</td>
</tr>
</tbody>
</table>

By analyzing Table 19, however, it’s possible to notice that the normality assumption does not hold for the Scandinavian group, as the obtained p-value (.021) is inferior to an \( \alpha \) value of .05. Consequently, further analysis (plotting and outlier checking) were made as a way to determine what could be causing the data non-normality. The results pointed out to two outliers being present in this group. After the removal of the outlier observations and now with a sample composed by 75 companies, all the groups presented approximately normal distributions (Table 20).

<table>
<thead>
<tr>
<th>Quality score IFRS 13</th>
<th>Legal origin of the country the company is located in</th>
<th>Shapiro-Wilk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Statistic</td>
<td>df</td>
</tr>
<tr>
<td>English origin</td>
<td>.961</td>
<td>29</td>
</tr>
<tr>
<td>French Origin</td>
<td>.966</td>
<td>20</td>
</tr>
<tr>
<td>German Origin</td>
<td>.958</td>
<td>15</td>
</tr>
<tr>
<td>Scandinavian origin</td>
<td>.922</td>
<td>11</td>
</tr>
</tbody>
</table>

The second step was then to test the homogeneity of variances in the date by calculating its Levene score, which presented a p-value (.170) higher than the significance level of
.05 (Table 21). Such results confirmed then that there are no significance differences between the variances of the different groups and therefore, an ANOVA test would be appropriate for this data set.

Table 21: Test of homogeneity of variances (Levene's Test)

<table>
<thead>
<tr>
<th>Levene Statistic</th>
<th>df1</th>
<th>df2</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.722</td>
<td>3</td>
<td>71</td>
<td>.170</td>
</tr>
</tbody>
</table>

Moreover, the last step was to submit the data to a one-way ANOVA test. Through realizing this test (Table 22), we found that the average quality scores obtained by the groups in question are significantly different at a .05 significance level from one another for us to reject the main null hypothesis \( (H_0: \mu \text{DisQua}_{\text{English}} = \mu \text{DisQua}_{\text{French}} = \mu \text{DisQua}_{\text{German}} = \mu \text{DisQua}_{\text{Scandinavian}}) \). Hence, these results indicate that real estate companies located in countries with different legal origins have dissimilar disclosure qualities relative to the fair value of investment properties.

Table 22: ANOVA test for different legal origin country groups

<table>
<thead>
<tr>
<th>Quality score IFRS 13</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>.654</td>
<td>3</td>
<td>.218</td>
<td>10.286</td>
<td>.000</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1.504</td>
<td>71</td>
<td>.021</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2.158</td>
<td>74</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nonetheless, although the ANOVA established that there is a difference between means in the data, only this test cannot tell us between which groups this mean difference is significant. Thus, a post-hoc test became necessary in order to answer our sub-hypothesis. In this regard, the Tukey-test HSD (Honestly Significant Difference) adaptation for unequal sample sizes was applied.

The first result brought up by the Tukey-test shows a significant mean difference between the English and the French origin groups (p-value =.022) at 5% significance level, which lead us to reject the sub-hypothesis 3.1 null hypothesis \( (H_0: \mu \text{DisQua}_{\text{English}} = \mu \text{DisQua}_{\text{French}}) \). Similar results of significant difference of means were also found between the English and German groups (p-value=.029), between the English and Scandinavian groups (p-value=.000) and, lastly, between the French and Scandinavian groups (p-value =.038). Consequently, we could also reject the sub-hypothesis 3.2 null hypothesis \( (H_0: \mu \text{DisQua}_{\text{English}} = \mu \text{DisQua}_{\text{German}}) \), the sub-hypothesis 3.3 null hypothesis \( (H_0: \mu \text{DisQua}_{\text{English}} = \mu \text{DisQua}_{\text{Scandinavian}}) \) as well as the sub-hypothesis 3.5 null hypothesis \( (H_0: \mu \text{DisQua}_{\text{French}} = \mu \text{DisQua}_{\text{German}}) \). On the other hand, concerning the relationship between the means of both French and German groups (p-value =.999), and German and Scandinavian groups (p-value =.071), no significant difference could be established at 5% significance level, according to the Tukey-Kramer test results (Table 23). Therefore, we failed to reject the sub-hypothesis 3.4 null hypothesis \( (H_0: \mu \text{DisQua}_{\text{French}} = \mu \text{DisQua}_{\text{German}}) \) and the sub-hypothesis 3.6 null hypothesis \( (H_0: \mu \text{DisQua}_{\text{German}} = \mu \text{DisQua}_{\text{Scandinavian}}) \).
Table 23: Tukey-Kramer test of difference of means

<table>
<thead>
<tr>
<th>(I) Legal origin of the country the company is located in</th>
<th>(J) Legal origin of the country the company is located in</th>
<th>Mean Difference (I-J)</th>
<th>Std. Error</th>
<th>Sig.</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>French Origin</td>
<td>English origin</td>
<td>-.124998*</td>
<td>.042310</td>
<td>.022</td>
<td>-.23631 -.01368</td>
</tr>
<tr>
<td>German Origin</td>
<td>French Origin</td>
<td>-.131448*</td>
<td>.046295</td>
<td>.029</td>
<td>-.25325 -.00965</td>
</tr>
<tr>
<td>Scandinavian origin</td>
<td>German Origin</td>
<td>-.274903*</td>
<td>.051545</td>
<td>.000</td>
<td>-.41052 -.13929</td>
</tr>
<tr>
<td>English origin</td>
<td>Scandinavian origin</td>
<td>-.124998*</td>
<td>.042310</td>
<td>.022</td>
<td>-.01368 .23631</td>
</tr>
<tr>
<td>French Origin</td>
<td>German Origin</td>
<td>-.006450</td>
<td>.049720</td>
<td>.999</td>
<td>-.13726 .12436</td>
</tr>
<tr>
<td>Tukey HSD</td>
<td>Scandinavian origin</td>
<td>-.149905*</td>
<td>.054642</td>
<td>.038</td>
<td>-.29366 -.00615</td>
</tr>
<tr>
<td>German Origin</td>
<td>English origin</td>
<td>.131448</td>
<td>.046295</td>
<td>.029</td>
<td>.0965 .25325</td>
</tr>
<tr>
<td>French Origin</td>
<td>German Origin</td>
<td>.006450</td>
<td>.049720</td>
<td>.999</td>
<td>-.12436 .13726</td>
</tr>
<tr>
<td>Scandinavian origin</td>
<td>Scandinavian origin</td>
<td>-.143455</td>
<td>.057783</td>
<td>.071</td>
<td>-.29548 .00857</td>
</tr>
<tr>
<td>English origin</td>
<td>German Origin</td>
<td>.274903*</td>
<td>.051545</td>
<td>.000</td>
<td>.13929 .41052</td>
</tr>
<tr>
<td>Scandinavian origin</td>
<td>French Origin</td>
<td>.149905*</td>
<td>.054642</td>
<td>.038</td>
<td>.00615 .29366</td>
</tr>
<tr>
<td>German Origin</td>
<td>Scandinavian origin</td>
<td>.143455</td>
<td>.057783</td>
<td>.071</td>
<td>-.00857 .29548</td>
</tr>
</tbody>
</table>

However, as two of the p-values (.029 and .071) obtained in the aforementioned test could be seen as almost borderline at a significance level of 5%, we decided to further test the groups using a less conservative version of the Tukey-test, called Tukey WSD (Wholly Significant Difference). According to this new test, the difference of means between the German and the Scandinavian groups is actually statistically significant at 5% significance level, so we could, in fact, reject the sub-hypothesis 3.6 null hypothesis \( H_0: \mu_{DisQua_{German}} = \mu_{DisQua_{Scandinavian}} \), as demonstrated in the table below:

Table 24: Tukey WSD test of difference of means

<table>
<thead>
<tr>
<th>Legal origin of the company is located in</th>
<th>N</th>
<th>Subset for alpha = 0.05</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>English origin</td>
<td>29</td>
<td>.44055</td>
</tr>
<tr>
<td>French Origin</td>
<td>20</td>
<td>.56555</td>
</tr>
<tr>
<td>German Origin</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Scandinavian origin</td>
<td>11</td>
<td></td>
</tr>
</tbody>
</table>

Means for groups in homogeneous subsets are displayed.
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

Finally, the conclusions drawn based on Tukey WSD test could be visually confirmed by the mean plot shown in Figure 19, where we clearly see a bunching of mean values of the
German and French groups, with the English group mean quite below the others values and the Scandinavian group mean very much above all others.

In order to clarify and summarize the results above, we have illustrated the answers to the hypotheses in Figure 20.

**Figure 20: Summary of hypotheses’ testing**
5.3. Discussion of results

After reaching our results and testing them through several statistical tests we can now answer our sub-questions and finally, the main research question that were originally stated in the introductory chapter. The first sub-question is articulated as follows:

Sub-question 1: For real estate companies in Europe, what is the level of compliance with IFRS 13 fair value disclosure requirements for investment properties?

In this sub-question, we address the level of compliance that is exhibited among the real estate companies examined in the year of 2013-14, as it is our interest to understand how well the mandatory disclosures are fulfilled under IFRS 13. After calculating both the mean and median compliance score, the numbers landed on 92.42% and 100% respectively. The fact that the median is the maximum score that could be achieved shows that most companies studied, more exactly 46 companies as can be seen in table 25 below, do comply with all the requirements that were examined. The somewhat lower mean indicates that although the overall compliance is very high, there still seems to be some degree of confusion amongst the real estate companies concerning the interpretation of certain requirements of IFRS 13, mainly but not restricted to, the presentation of a sensitivity analysis for the fair value of investment properties.

Table 25: Compliance in % for the sample

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>.6667</td>
<td>5.2</td>
<td>5.2</td>
<td>5.2</td>
</tr>
<tr>
<td>.8333</td>
<td>35.1</td>
<td>35.1</td>
<td>40.3</td>
</tr>
<tr>
<td>1.0000</td>
<td>59.7</td>
<td>59.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

What may be seen as surprising is that no relationships were found between the compliance scores and the firm-level factors, namely profitability (return on equity), firm size and debt-to-equity. These results contradict the previous findings of Lang & Lundholm (1993, p. 251) and Ahmed & Courtis (1999, p. 54), with the former one stating that higher profitability levels usually increases the amount of disclosures, at least when information asymmetry tends to be high, and the latter one pointing out that firm size frequently exhibits a positive correlation with the amount of disclosures. Notwithstanding, it is important to clarify that the authors achieved these findings through the analysis of all corporate information made public in annual reports while this study focused solely on the disclosures relative to the fair value of investment properties, consequently the application of our results should be restricted to this context.

Furthermore, after examining the annual reports and analyzing the results it is clear that the guidance that IFRS 13 provides still allows for a great amount of leeway concerning how to apply the disclosure requirements present in the standard. This conclusion is aligned with the reasoning stated by Ball (2006), as the shown flexibility leads to a somewhat uneven implementation (Ball, 2006, p. 22). When conducting this research the lack of guidance was primarily visible in the area of providing a sensitivity analysis during 2013-14, where many different interpretations of the meaning of a sensitivity
analysis were evident. This forced us as researchers to define, originating from the standard, what a sensitivity analysis in this study would be comprehended as. Even though one of the main objectives with this new accounting standard was to increase the transparency and consistency of disclosures (IASB, 2011), our results reinforce the idea that further improvements are still needed in order to fully reach these goals. This is particularly true when the concept of consistency is taken into consideration, as different interpretations of a standard often lead to different reporting practices, consequently making an objective comparison between information disclosed by different companies very difficult. Such lack of comparability, on its turn, goes against the IFRS Framework’s (2014, pp. 24-42) specification of the qualitative characteristics that should permeate corporate disclosures.

Moreover, as previously discussed in chapter 3, research within the area of compliance is very scarce and, therefore, no uniform theory when it comes to compliance of mandatory disclosure requirements can be found in the literature (Glaum et al., 2013). As a result, this study becomes quite unique as it contributes in providing a framework for how compliance can be measured and which firm-level factors could influence it.

Sub-question 2: Are there any differences in disclosure quality for investment properties in real estate companies in Europe, before and after the implementation of IFRS 13?

The objective with our second sub-question was to investigate whether any differences could be seen in disclosure quality between the two considered reporting periods. While examining the annual reports and the information related to fair value for investment properties for 2012-13 it was clear that a part of the companies studied did in fact provide more information than required under IAS 40, which affirms previous research by Edelstein et al. (2012, p. 367). Examples of this extra information given consist of appraiser’s reports as well as sensitivity analyses. However, when preliminarily comparing the quality between the two years, an improvement in both the quantity and the level of details of the information provided on fair value of investment properties was already visible. Furthermore, after testing for significance, it was found that there is in fact a statistically significant difference in disclosure quality before and after the implementation of IFRS 13.

Some observable improvements were related to the fact that more companies, under the new standard, provide a sensitivity analysis and also show how the inputs affect the fair value valuation of investment properties. From this, it is clear that IFRS 13 have had a positive impact when it comes to the quality and amount of information that is provided regarding fair value of investment properties in real estate companies in Europe. Moreover, a relationship between leverage and disclosure quality was found, where companies with a higher debt-to-equity ratio had higher disclosure quality scores. This result is aligned with previous research by Iatridis (2011, p.99) that stated that highly levered firms tend to provide better quality annual reports. Nevertheless, it is important to clarify that though this relationship was evident, only one standard and its related information have been scrutinized, therefore this correlation might not hold when all disclosures presented in an annual reports are analyzed.

Lastly, as stated in the theoretical framework, there is no consensus on what disclosure quality actually is. Nonetheless, authors like Kothari (2000, p. 91) refer to disclosure quality as a result of the quality of the accounting standards and the subsequent
enforcement or application of these requirements. Through this research we have been able to shed some additional light upon this area in how it can be measured when examining a specific part of an annual report.

**Sub-question 3: Are there any differences in quality between different countries in Europe in IFRS 13 related disclosures for investment properties in real estate companies?**

Though the second sub-question was able to answer how the overall disclosure quality have been affected by IFRS 13, we wanted to investigate if the quality is symmetrical between different origins. The average quality score (mean) for each of the four origin groups were then calculated and compared to one another through statistical tests. Our results demonstrate that Scandinavian real estate companies presented a significantly higher average disclosure quality score relative to the fair value of investment properties in relation to the other analyzed groups. German and French origin companies, on their turn, displayed quite similar means, indicating that companies from these areas perform fairly equal concerning disclosure quality.

Lastly, the English origin companies exhibited the lowest overall quality scores (see Figure 19). The fact that they got the lowest mean, however, was no surprise as a clear difference was already very apparent during the analysis of the annual reports. Further, statistical tests showed a significant difference between the English origin companies’ quality scores in comparison to the other three groups.

However, taking into consideration the theoretical framework drawn up in chapter 3, the bottom scores reached by the English origin companies go against prior findings in the relevant literature, which usually relates common law countries with higher disclosure quality as a result of more rigorous enforcement of the accounting standards applied (Ball et al., 2000). Jaggi & Low (2000, p. 516) put forward, for example, that because of less concentrated ownership and high level of debt, which is often showed in common law countries, more detailed disclosures are often given in these areas. Notwithstanding, the great contrast between both the amount of information and level of details of the disclosures made provided by the UK companies in comparison to those of other origin firms was undeniable in our sample.

One possible explanation for the significantly lower disclosure quality found for the common law country in our sample (i.e. United Kingdom) may be found in Soderstrom & Sun (2007, p. 693), who attributes a higher degree of bank financing to common law countries, where a better creditor protection can be found. Due to the fact that financial institutions often retrieve information directly from a firm’s management and, therefore, do not rely as much on financial reporting information for decision making (Diamond, 1984, p. 383), firms in common law countries might present lower disclosure quality, which was reflected in our results.

On the other hand, it is essential to point out that in our sample only firms from one country composed the English origin group, which might limit the generalizability of these results to all common law countries. Besides, other externalities could also be in play to explain the lower quality scores of this specific group of companies. It is important to consider, for example, that all companies analyzed have to report not only accordingly to IFRS standards but also to national legislation and best practices, consequently certain aspects of the annual reports might receive more attention in detriment of others. In this
context, many English companies are more prone to provide extensive remuneration reports while many French origin companies focus on the full transcription of the appraisers’ reports. As a result of these choices, it is easy to find annual reports comprising over 400 pages for French origin companies at the same time that English origin companies’ reports remain mostly at about 150 pages but many information on fair value of investment properties are often missing.

**Main research question:** Does IFRS 13 affect the disclosure quality for investment properties in real estate companies in Europe?

Through the analysis of the results relative to our three sub-questions, which measured compliance levels with IFRS 13 and investigated disclosure quality under both longitudinal and cross-sectional perspectives, it is possible to finally answer our main research question in a positive manner. That is, this study provides enough evidence for us to affirm that IFRS 13 affects the disclosure quality for investment properties in real estate companies in Europe. Such effect, however, although positively influenced by an overall high compliance rate (above 90%) with IFRS 13, did not present itself uniformly across all analyzed real estate companies in Europe. Scandinavian origin companies obtained significantly higher quality scores than firms from other legal or origin countries while companies pertaining the English group achieved the lowest average quality. The significant improvement in disclosure quality for the sample as a whole in comparison to the period immediately prior to the implementation of IFRS 13 is, however, undeniable.

The conclusion reached in regards to our main research question seems to be reasonable, as the objective was to eliminate inconsistencies and increase the transparency of the information provided about fair value measurements (IASB, 2011). This aim has, on its turn, been possible to verify through this research since the information given is more detailed under IFRS 13. The problem that was brought up in the very beginning of this research, that the fair value measurement and surrounding disclosures are not as straightforward for assets and liabilities having no active markets, have furthermore been proven to be correct. This could specifically be seen in regards to the disclosure requirement of providing a sensitivity analysis amongst others. Further, this indicates that though the overall disclosure quality has been affected by IFRS 13 in a positive manner, there are certain areas that still pose some uncertainty. Though, we cannot disregard that these could be present due to a transition period, as the first year of implementation has been under scrutiny.

This thesis have studied an interesting aspect of IFRS 13 and by combining this with quality, it has been possible to contribute with valuable knowledge. We believe that it is important to evaluate the new accounting standards that are implemented. Thereby, not restricting to the quantity of disclosures, as it has been visible that more information do not necessarily mean better or higher quality information. Though quantity can be a means to providing more information, it is crucial to look deeper into what information that is provided and the value of those facts. However, a difference between companies as well as countries is most likely inevitable since IFRS (IAS 1, 2014) points out that the disclosures depend on what the management deems to be material to the relevant stakeholders’. This by its definition, introduces subjectivism to some degree which differs between companies. By conducting this research we have nevertheless introduced a new measure for examining disclosure quality for separate accounting standards that has the possibility of being further developed for the use of evaluating other standards and areas.
6. CONCLUSION

The purpose of this chapter is to reflect upon our research and the quality of our findings. This chapter will start with a discussion on how we have ensured a high quality and afterwards, in an attempt to bring everything together, we will elaborate on our intended purpose and how that has been fulfilled. Subsequently, the findings will be summarized and we will provide a thorough discussion on the contributions of this study. Finally, some suggestions for further research will be given.

6.1. Quality criteria for research

When conducting research it is essential that the process and findings are of good quality. According to Bryman & Bell (2011, pp. 41-45, 157-166) there are three main criteria for ensuring this: reliability, validity and generalizability.

6.1.1. Reliability

This criteria refers to whether the results of a study would be possible to repeat and if they would be found consistent if the research was undertaken at another point in time or by another researcher (Bryman & Bell, 2011, p. 41; Saunders et al., 2012, p. 192). Bryman & Bell (2011, p. 41) point out that this is particularly a concern in quantitative research, which we are conducting. In our case, we believe that the reliability can be considered high, however, in order for consistent results to be found, it would be crucial to make an identical study as the smallest change in items or topics could alter the findings.

Furthermore, it is important to remember that this process have required us as researchers to make some interpretations of the regulations studied and the disclosures made by the real estate companies. The interpretations in this case have contributed to a small degree of subjectivity and if this study would be repeated, the interpretations could perhaps differ as different researchers look upon things in different ways. Though, we have been able to mitigate this issue in our study by continuously discussing how interpretations should be made. This has ensured that we, as two researchers, have had the same understanding for the different aspects of compliance and disclosure quality. Moreover, the clear structure in what to examine has also aided us in making less interpretations. It is nonetheless important to keep in mind that other researchers would perhaps interpret things differently.

There is another criteria that is related to reliability and that is replicability, which has directly to do with the direct replication of a study (Bryman & Bell, 2011, p. 41). We touched upon this in the previous paragraph when discussing how it would be achievable to perform the same study again and receiving the same results. Yet for this research we feel that it is important to emphasize this part. Bryman & Bell (2011, p. 165) highlights that it is essential that the procedures used throughout a research project are explained in details, for others to be able to replicate the study. During the course of our research we have continuously had in mind that this study involves many complex parts. Therefore we have tried to explain our reasoning in a thorough manner to facilitate for readers in following and understanding the process we have gone through in collecting the data and scoring the overall compliance and disclosure quality.
6.1.2. Validity

Another important quality criteria is validity, which concerns if the values used to measure a certain concept in fact measures that particular concept (Bryman & Bell, 2011, p. 159). In order to justify the validity in this study, our research has been based on previous studies made within the same area and it has been our focus to use as much of the prior knowledge as possible when constructing our own model. This has secured that the measures we have used are valid, as they have been used before for similar purposes. The thorough research process has furthermore made us discover that this area of research is very specific and the peer-viewed articles we have gone through, regarding how to measure disclosure quality, have therefore been very explicit in its content. This has made it clear that the measures used have been related to the measurement of disclosure quality. Additionally, we have kept a questioning mind when developing and adapting the model used, to ensure that the indicators used have in fact measured the concept of disclosure quality.

6.1.3. Generalizability

In relation to the quality of research, an additional important feature is the criteria of generalizability, which implies that it should be possible to generalize the findings to other similar contexts than the one studied (Bryman & Bell, 2011, p. 163). For our research we have used a sample from a recognized index that represents the real estate industry. What we have been able to find is that there is a broad range of real estate companies in regards to profitability, size and leverage. This shows that the companies examined are very different in many aspects and the index represents a variety of real estate companies. One questionable area could be the size of the sample; the findings based on 77 companies could be debatable when it comes to generalizing the results. Though we believe that the index used represents the industry well and gives a good overall picture of the disclosure quality for the real estate industry in Europe. We can hence conclude that our findings are generalizable to similar real estate companies like the ones studied i.e. publicly listed real estate companies that adopts IFRS 13 in valuing their investment properties.

6.2. Final considerations

When this research was initiated the intention was to fill a gap that we found to be highly relevant. IFRS 13 was implemented in 2013 and since then no research has been conducted regarding disclosure quality for investment properties. There have been much done in relation to fair value measurement, however the impact of the new standard has been unexploited, although it has meant significantly more extensive disclosure requirements for the lower levels of the fair value hierarchy. It was possible to find various sources of information about the expected impacts though it had not yet been feasible to study the actual impact as no annual reports where IFRS 13 were adopted had been issued yet. This is where we found our research gap, the annual reports after the first year of implementing the new standard had now been released and it would be viable to examine these. Nonetheless, with the intention of investigating if IFRS 13 have had a significant impact on the quality, the decision was made to compare the annual reports for 2012-13 and 2013-14, under the old and new regulations.

The main research question that we wanted to investigate was: Does IFRS 13 affect the disclosure quality for investment properties in real estate companies in Europe? In order
to provide a thorough answer we decided to construct three sub-questions that would lead to the answer of the main question. The first one would consider the compliance of the disclosure requirements under IFRS 13 and would be regarded as a benchmark when moving on to the quality aspect, as a higher compliance score could be seen as a first step towards a higher quality. However, this was only measured for 2013-14 and hence it would be a cross-sectional study. This was followed by examining if there were any differences in disclosure quality for investment properties in real estate companies in Europe, before and after the implementation of IFRS 13. Here a comparison was made between the quality showed in 2012-13 and 2013-14, making this longitudinal. The third and final sub-question had more focus on the different parts of Europe and the origins that exist within this geographical area. This would be based on comparing the quality after dividing the companies into their respective origins and as the comparison would only be made based on the quality scores under IFRS 13, this would also be cross-sectional.

6.2.1. Research results

After a thorough examination of approximately 150 annual reports it was possible to draw conclusions about our findings. This showed that the overall compliance level with the disclosure requirements under IFRS 13 had a mean and median of 92.4% and 100% respectively. This suggests that the level of compliance is very high though it is only the first year of implementation. Regarding the disclosure quality, we could already notice an improvement while reading the annual reports. It was very apparent that the real estate companies studied showed more commitment to disclosing more information about their investment properties and the related fair values in 2013-14 than in 2012-13. The disclosures were furthermore more detailed and extensive under IFRS 13 than IAS 40. After analyzing our data in SPSS an improvement in disclosure quality was visible and it further showed that the result was significantly different from the prior year. After this result was found, we examined different origins and compared the quality scores between the real estate companies. This gave the result that companies with a Scandinavian origin tend to outperform companies from the other origins. French and German origin companies are inclined to perform quite evenly when disclosing information about investment properties and fair value. Nonetheless, French origin companies displayed the highest variability in their quality scores in comparison with the other origins. Lastly, English origin real estate companies presented the lowest quality scores. The main research question can in this context be answered by stating that IFRS 13 have affected the disclosure quality for investment properties in real estate companies in Europe, and the change has been positive as it has improved.

6.2.2. Ethical aspects

Throughout this research we have kept in mind the ethical aspects that were discussed in section 2.11. Special consideration has been given to the fact that we have utilized public information and that there are several issues connected with this. As we have used annual reports which have been examined by auditors we have found the information in these reports to be reliable and we have further only interpreted it in its original context which has been aimed at providing information about the company and its operations to various stakeholders. It is moreover important to point out that we have not had any preconceptions regarding our findings which has ensured the objectivity of this study. Additionally, we understand that the findings of this study could have an impact on various groups of people nonetheless the focus have been to contribute with knowledge
to academics, legislators, investors and auditors. The specific contributions for each target group will be discussed in the following section.

### 6.2.3. Contribution and remarks

The intention of this research was to be able to contribute to several interested parties in different ways. As intended target audience we focused on academics, legislators, investors and auditors. For academics it was our objective to be able to build upon prior knowledge and research within this area. We have provided new insights into this area by presenting how disclosure quality can be measured for one single standard without having to scrutinize all the content in the annual reports. This opens up the possibility for other academics to study other accounting standards as well as examining the effect of future standards that might be implemented.

Secondly, this research was also intended to benefit and contribute to legislators. The idea in this context was to provide information regarding the impact of IFRS 13 and if it have had the desired effects. As stated in the theoretical framework, IFRS 13 aimed at increasing the transparency of what methods and assumptions that were used. Through this study we have been able to confirm that IFRS 13 has in fact increased the transparency in real estate companies as most of them disclose more detailed information about both methods and assumptions, than what was disclosed prior under IAS 40. Nevertheless, it is apparent that IFRS 13 is still quite unclear and many interpretations are still needed when adopting this standard. This was visible when examining the annual reports, for example, the companies studied had interpret the concept of a sensitivity analysis in very dissimilar ways. Some companies had given information about how different changes in inputs actually would alter the fair values in numbers while others had only given brief information saying that a change in an input would affect the fair values positively or negatively without presenting actual numbers. These findings indicate that further guidance would most likely be needed for a better consistency between these companies to be reached.

Investors was another group that was addressed in this research. When investing in a real estate company, where investment properties comprise the majority of the assets, it is crucial to understand the fair values and how those have been calculated in order to reduce the risks from an investor’s point of view. This study has in a clear manner examined how well these companies have actually disclosed this type of information and emphasized where information might be missing. This could help potential investors’ in being more attentive to specific information and in their decision-making.

Finally, we also believed that this study could contribute to auditors. Here the idea was to find out how well real estate companies in general comply with the mandatory disclosure requirements and through that be able to shed some light upon the areas where incompliance can be seen most frequently and to what areas more attention should be given to. By performing this research it made it viable to discover that in relation to IFRS 13, several companies within this industry does not comply in providing a sensitivity analysis, in fact almost 34 % of the companies in our sample did not give this information. This is in other words an area that auditors should scrutinize more closely.

As final remarks it is essential to point out that this is a unique study as disclosure quality has been examined by limiting to a specific standard and area, as well as the whole annual
reports have been studied and not only the notes. However, it has not been possible to generalize the level of quality found to the entire annual report and the overall quality. We have limited ourselves to drawing conclusions regarding disclosures about fair value and the relationships that exist in relation to that information. A final consideration is that in despite of using objectivism we have not constructed new knowledge, we have simply collected data from already existing facts and drawn new conclusions.

6.3. Suggestions for further research

When conducting this research the perspective taken was the one of the legislators in order to assess the efficacy of the new legislation, though there are other interesting perspectives that could be taken. One idea could be to carry out a qualitative study and investigate the effects of IFRS 13 from the real estate companies’ point of view. It would then be possible to examine how these companies have been affected by the new standard and what this has meant for them workwise. Another perspective could be the one of an analyst. We have been able to find an increase in disclosure quality, however, it would be interesting to know whether this extra information is relevant from an analyst’s standpoint.

With further research within this area, in the shape of the previous suggestions given, it would be feasible to cover more aspects and broaden the research related to the more extensive disclosure requirements under IFRS 13. This could moreover lead to additional results and findings from which a more profound evaluation could be performed regarding the usefulness and efficiency of IFRS 13.
Reference list


AFM. (October 2012). Valuation and disclosure of investment property, supervision of financial reporting. [Report]. Amsterdam: The Netherlands authority for the financial markets.


PwC. (September 2011). Practical guide to IFRS, Fair value measurement: implications of IFRS 13 for the real estate industry. [Report]. N. D.: PwC


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### Appendix 1: Sample Companies

<table>
<thead>
<tr>
<th>Company Name</th>
<th>Country</th>
<th>Annual reports examined</th>
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<td>Germany</td>
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<td>2012 &amp; 2013</td>
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<td>Corio</td>
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<td>2012 &amp; 2013</td>
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**Total** 77

The original list including 94 companies can be found on the website of FTSE. The link is presented in the reference list.
## Appendix 2: Division of countries by origin (based on sample)

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<th>French origin countries</th>
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<tr>
<td>• Poland</td>
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In figure 4 we presented how countries can be divided into the four origins above based on La Porta (1998). This illustration is based on our sample and displays how the division looks for our research.
Appendix 3: Audit firms

Audit firms (2012-13)

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<th>Valid Percent</th>
<th>Cumulative Percent</th>
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<td>7.8</td>
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Audit firms (2013-14)

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