Birds of a feather flock together - or do they?

− An empirical study of the cultural and sector-specific effects on revenue and equity due to the implementation of IFRS 15 −

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Abstract

Globalization and the international integration of markets have emphasized the need for increased accounting harmonization. *IFRS 15 Revenue from Contracts with Customers* was introduced for fiscal years beginning on or after 1st of January 2018, with an intention to increase comparability. This has been done by replacing previous revenue standards and establishing one revenue recognition standard for almost all types of contracts with customers. Using data from the first available quarterly and interim reports since the introduction of IFRS 15, this thesis analyses the effects on firms' reported equity and revenue for 250 firms across 4 different cultural dimensions in accordance with Gray (1988). The findings of this study show that the adoption of IFRS 15 has a more negative than positive effect on firms' equity and revenue. Furthermore, the effect on equity is shown to be different depending on culture, adding to the literature that cultural accounting patterns can still be observed, even after years of harmonization. Lastly, this thesis finds that disclosure behavior is influenced by cultural accounting traditions, which affect the choice of method when adopting IFRS 15.

Keywords: IFRS, IFRS 15, Accounting Regulation, Financial Accounting, Measurement and Disclosure

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TABLE OF CONTENTS

LIST OF TERMS USED

IASC - International Accounting Standards Committee

IFRS - International Financial Reporting Standards

IASB - International Accounting Standards Board

IAS - International Accounting Standards

IFRIC - International Financial Reporting Interpretations Committee

FASB - Financial Accounting Standards Board

SIC - Standing Interpretations Committee

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDIX FIGURES

1. INTRODUCTION

Revenue, one of the most important accounting measures, is used by investors in assessing companies past performance as well as its future prospects (FASB, 2017). As such, a milestone in financial reporting was reached on the first of January in 2018 when a new revenue recognition standard, *IFRS 15 Revenue from Contracts with Customers*, came into play, affecting the financial reporting of thousands of firms across several countries. Since this change has a direct impact on the financial reporting of firms across several countries, speculation has been ripe among practitioners as well as researchers as to the actual effects. As companies have started to release their first financial statements after adopting IFRS 15, the effects can now, finally, be reviewed.

As an initiative to form a single set of accounting standards that are accepted by all countries, the Accounting Standards Board (IASB) was formed in 2001. IASB is an independent standard-setting board which should not be dominated by any particular constituency or geographical interest. The revised or new principles-based standards issued by IASB are called International Financial Reporting Standards (IFRS) (Picker et al., 2016). In 2002 the European Union (EU) approved Regulation No.1606/2002, requiring all listed companies to use IFRS for their consolidated financial statement starting from 2005 (L 243, pp. 1-4). Since then, IFRS has been continuously developed with new standards that replaced the old ones as an endeavor to improve overall quality. One reason for this so called "accounting harmonization", is that worldwide integration of both markets and politics has made a unified system for financial reporting almost inevitable (Ball, 2006).

In an effort to further improve the standards, IASB issued IFRS 15 in May 2014. The standard was set to be implemented for fiscal years beginning on or after the first of January 2017. However, after publishing further clarification on the standard, the effective date was pushed forward to fiscal years beginning on or after the first of January in 2018. The new standard IFRS 15 replaces IAS 18 Revenue, IAS 11 Construction Contracts as well as a number of related interpretations. There have been concerns that inconsistencies in these standards often lead to different accounting for similar economic transactions. Contrary to old standards, IFRS

15 specifies a robust and comprehensive framework for recognizing revenue that consistently applies to the majority of contracts for goods and services (Deloitte, 2017).

Due to the diversity in practice that existed before the first of January 2018, the IASB could not definitely anticipate the extent to which IFRS 15 would affect the amount and timing of revenue recognition once implemented. The practical effects of IFRS 15 was predicted by the IASB to be dependent on the company, the transaction, the sector and the jurisdiction. (IFRS, 2014). The lack of answers to the exact effects of IFRS 15 have echoed throughout the financial and auditing community. However, many have predicted the effects to be extensive.

> *"For many organizations, IFRS 15 will have a broad impact – not just changing the amounts and timing of revenue, but requiring an overhaul of the core systems used to produce the numbers."*
>
> *- Prabhakar Kalavacherla - KPMG's global IFRS revenue recognition leader*
> (KPMG, 2016)

Although industry experts and standard setters have, to a large degree, emphasized factors such as company characteristics, sector, nature of goods or services and jurisdiction as potential factors influencing the ultimate impact from adopting IFRS 15, the effect of country differences should not be neglected. A previous study shows that disclosure behavior, as determined by IAS 32, IAS 39 and IFRS 7, is shown to be affected by country specific institutional and cultural factors (Erkens, 2016). By utilizing cultural variables developed by Hofstede (1991, 2001), evidence is provided for influences of cultural variables on disclosure, further suggesting that accounting standards per se are not sufficient for transparent and internationally comparable financial reporting and disclosure (Erkens 2016). With this in mind, it is natural to wonder if cultural influences have impacted the adoption of IFRS 15 as well.

In this context, this thesis seeks to answer the research question:

What are the effects from the implementation of IFRS 15 in terms of the effect on equity, revenue and disclosure and are there any cultural or sector patterns?

2. EMPIRICAL CONTEXT

In this section, the historical development of IFRS is presented. Also, the new standard IFRS 15 is described along with the implementation requirements and choices.

2.1 International financial reporting standards – IFRS

In the effort to develop an internationally accepted financial reporting standard, the International Accounting Standards Committee (IASC), an alliance of 16 national accountancy bodies from nine different countries, was founded in 1973. In 1997, almost 25 years after its founding, the IASC reached the conclusion that in order to continue fulfilling its role, it must find a way to reach convergence in the accounting standards and practices on a global level. In order to do so, IASC decided for a new structure and in July 2001, the new International Accounting Standards Board (IASB) came into effect. Initially, IASB adopted the International Accounting Standards (IAS) and when the standards were revised or re-issued by IASB, they were titled: International Financial Reporting Standards (IFRS). As of today, more than a hundred countries worldwide require or permit IFRS. Furthermore, the initial adoption of the IFRS financial reporting standards, represents one of the major regulatory changes in accounting history (Daske et al., 2008).

2.2 IFRS 15

IFRS 15 *Revenue from contract with customers* was issued in May 2014. Its effective date when initiated was on January first of 2017, which was later postponed in an amendment until January first of the following year (2018). IFRS 15 replaces all of the previous revenue standards and interpretations of IFRS, including IAS 11 *Construction Contracts*, IAS 18 *Revenue*, IFRIC Interpretation 13 *Customer Loyalty Programs*, IFRIC interpretations 15 *Agreements for the construction of Real Estates*, IFRIC interpretation 18 *Transfer of Assets from Customers* and SIC Interpretation 31 *Revenue-Barter Transactions Involving Advertising Services*. These previous standards and interpretations focused mainly on the transferring of risk and rewards as the basis for when revenue should be recognized. IFRS 15 differs from previous standards in that it shifts the focus from recognizing revenue based on risk and reward to recognizing revenue at the transfer of control of goods or services to the customer from the entity. In applying IFRS 15, revenue is recognized in an amount that reflects the consideration

to which the entity expects to be entitled by the transfer of these goods or services to the customer.

This new standard is constructed in line with a five-step model, which entails; (1) Identifying the contract(s) with a customer (2) Identifying the performance obligations in the contract (3) Determining the transaction price (4) Allocating the transaction price to the performance obligations in the contract (5) Recognizing revenue when (or as) the entity satisfies a performance obligation. Under IFRS 15, an entity must determine whether control is transferred over time or at a point in time for each of its performance obligations. As IFRS 15 is more prescriptive than previous standards, significant changes may occur to the timing of revenue and profit recognition. Therefore, the profile of revenue recognition and cost recognition can also have wider business impacts (Deloitte, 2018).

Requirements regarding presentation and disclosure have also changed and require more details in comparison to the previous standards. For the purpose of first-time adoption of IFRS 15, entities can choose to apply either a *full retrospective method* for all periods presented in the period of adoption or a *modified retrospective method* in which the accumulated effect is presented in retained earnings during the period of adoption.

When choosing the *full retrospective method*, prior year comparatives should be restated resulting in an adjustment to the opening balance of equity in the earliest comparative period. When choosing the *modified retrospective method*, opening balance of equity has to be adjusted at the date of initial application, but no adjustments to the prior year comparatives are required. Contracts that have been completed prior to the date of initial application do not need to be adjusted. Thus, the *modified retrospective method* discloses numbers in the financial reports so that the figures reported from the date of initial application will be the same as if the standard would have always been applied. However, for the previous periods, the numbers will remain the same as the previous basis (Deloitte, 2018). Early adoption, before 1st of January 2018, has been accepted (EY, 2018).

3. LITERATURE REVIEW

In this section, a review of previous research in the field of financial accounting as well as differences in financial accounting practices is presented. Firstly, the section touches upon the purpose of accounting and what stakeholders expect. Secondly, studies related to accounting patterns and how that has affected financial reporting are reviewed. Thirdly, the frameworks of Hofstede and Gray are presented to explain cultural differences in accounting systems. Lastly, recent literature regarding IFRS is presented in which studies have questioned the execution of the standards and suggested the existence of lingering patterns in IFRS.

3.1 Purpose of accounting

The objective of financial accounting was described by Seidler (1967) to disclose a fair presentation, which is described more in detail in the quote below:

> *"It is assumed that the user of financial information will best be served by full disclosure of unbiased financial information"*
>
> (Seidler 1967, p. 779).

Even though the objective of financial accounting has been to disclose a fair value, it has not always been globally aligned in practice as it has differed depending on where in the world one is. Seidler (1967) describes for example how Scandinavian accountants have been more aware of the limitations of annual income and utilized more "hidden reserves" which is a term that in other parts of the world was considered more of an opprobrium. In Finland for example, it has been considered appropriate to take actions in order to reduce fluctuations in net income to protect shareholders from their own optimism or pessimism in relation to the financial reports. In Russia however, a continuous use of under depreciation as a way to manipulate the operating performance has been a common way of controlling the numbers. The quote from Seidler (1967) above in relation to the differences in international practices illustrates a historical nonalignment in the practice of accounting.

3.2 Accounting patterns

Although the objective of accounting is the same, studies have shown that patterns in accounting practices can been found within similar environments, cultures and firms. A consequence of this is that the interpretation of financial reporting on an international level is not the same due to diversity in accounting systems and can in many cases have significant economic consequences (e.g. Choi et al., 1983; Choi and Levich, 1991; Lainez and Callao, 2000; Bushman and Smith, 2001).

3.2.1 Environmental accounting patterns

Comparative accounting has for a long time been a focus for researchers trying to explain differences in accounting development based on the influence of environmental factors (e.g. Muller 1967, Zeff 1971, Radebaugh 1975, Choi and Muller 1984, Nobes 1984, Arpan and Radebaugh 1985, Nobes and Parker 1985). Previous research has provided results stating that different accounting patterns exist based on environmental differences and that international classification differences may have significant implications for international harmonization and economic integration. As a result, the identification of patterns has been suggested as a useful way of permitting a better understanding of the potential for change in financial accounting given any change in environmental factors (Nobes 1984).

3.2.2 Firm characteristics patterns

Firm characteristics are also somethings that have been studied in relation to financial accounting in order to identify patterns. An important reason for disparity in financial reporting across European countries has historically been referred to as accounting conservatism (Garcia Lara & Mora, 2004). The concept has for example been studied in relation to debt and equity financing. Accounting conservatism has then been identified in cases of high level of debt financing since debt holders require a high degree of certainty and are aiming at limiting risk when making investment decisions. In the cases of a high degree of equity financing, more transparency and fair performance have been identified when it comes to financial accounting, which means less conservatism (Mueller et al., 1991). Therefore, the financing structure of firms has been found as a mean of more or less accounting conservatism. Arguments in line with this, in which the financing structure has been identified as a fundamental driver of financial accounting practices have also been brought up by Nobes (1998). He argues that

shareholders as providers of financing will demand more public disclosure and external audit since the majority does not have any involvement in the management of the firm or access to any additional non-public information.

3.2.3 Cultural accounting patterns

Another attempt to understand differences in international accounting systems and patterns has been to create clusters based on cultural influences on accounting practices (Gray 1988). Culture has had a strong influence on behavior in different social systems and has been recognized in a broad range of previous literature (e.g. Inkeles and Levinson 1969; Douglas 1977; Hofstede 1980). Cultural clusters are believed to contribute to the understanding of similarities and differences across accounting systems and help regulators and standard setters to assess problems and possibilities when it comes to international harmonization (Gray and Radebaugh, 1997).

3.3 Cultural influences on international accounting

Culture can be referred to as "*the collective programming of the mind which distinguishes the members of one human group from another*" (Hofstede, 1980, p. 25). A framework which connects culture with the development of accounting systems internationally has been developed by Gray (1988). Recent research has used such accounting system classification based on cultural influences and been shown to be significant in explaining differences in the measurement of equity (Hellman et al., 2015).

3.3.1 Early research on culture

The four basic dimensions of culture used in Hofstede's (1984) studies about cultural influences are; *individualism versus collectivism*, *large versus small power distance, strong versus weak uncertainty avoidance* and *masculinity versus femininity*. Individualism pertains to a preference for a society wherein individuals take care of themselves whereas collectivism is the opposite. The large versus small power distance dimension addresses the issue of how inequalities among people are handled. In societies with large power distances, a hierarchical order where everyone has a place without any further justification is accepted. However, in societies with small power distance, people strive for equalization of power and fight any power

inequalities. Uncertainty avoidance relates to how uncomfortable members of society feel when faced with uncertainty. In societies with a strong uncertainty avoidance rigid codes of behavior are maintained and one is less acceptive of deviant ideas. Contrastingly, in societies with a weak uncertainty avoidance a more relaxed attitude is maintained, in which practice weighs heavier than principles. Masculinity stands for a societal preference for achievements, heroism, and assertiveness whereas femininity stands for a preference for modesty, caring and quality of life (Hofstede, 1984).

Baskerville (2003) criticizes Hofstede and argues that it is difficult to try to understand a culture by numerical indices and that it is dangerous to equate nations with cultures. Hofstede (2003) in turn, responds to this criticism stating that although nations are not perfect units for studying cultures, they are usually the only kind of units available for comparison and are better than nothing.

3.3.2 Connecting culture and international accounting

Gray (1988) utilizes the extensive research provided by Hofstede (1980, 1983) and investigates to what extent cultural differences can explain international differences in accounting. In *Figure 1*, Gray (1988) shows the culture areas identified, including sub-groups based on the cluster analysis from Hofstede (1980, 1983).

More Developed Latin	*Less Developed Latin*	*More Developed Asian*
Belgium	Colombia	Japan
France	Ecuador	
	Mexico	
Argentina	Venezuela	
Brazil		
Spain	Costa Rica	
	Chile	
Italy	Guatemala	
	Panama	*African*
	Peru	East Africa
	Portugal	West Africa
	Salvador	
	Uruguay	
Less Developed Asian	*Near Eastern*	
Indonesia	Arab countries	
Pakistan	Greece	
Taiwan	Iran	
Thailand	Turkey	*Asian-Colonial*
	Yugoslavia	Hong Kong
India		Singapore
Malaysia		
Philippines		
Germanic	*Anglo*	*Nordic*
Austria	Australia	Denmark
Israel	Canada	Finland
	Ireland	Netherlands
Germany	New Zealand	Norway
Switzerland	U.K.	Sweden
	U.S.A.	
	South Africa	

Figure 1 - Culture Areas (Hofstede, 1984) as depicted by Gray (1988)

Gray (1988) utilizes the cultural dimensions developed by Hofstede (1984) to explain international differences in the behavior of accountants and thereby in the character of accounting practices. The accounting values proposed by Gray (1988) are *Professionalism versus Statutory Control*, *Uniformity versus Flexibility*, *Conservatism versus Optimism* and *Secrecy versus Transparency*.

Professionalism versus Statutory Control relates to the degree accountants are perceived to adopt independent attitudes and exercise their own professional judgement. Professionalism can most closely be linked to a preference for a loosely knit social framework, faith in individual decisions and more emphasis on independence. Here one can contrast accounting in the U.K. with a focus on presenting a true and fair view, which depend heavily on the judgement of the accountant, with Germany where the role of the accountant rather has been concerned with the implementation of relatively prescriptive legal requirements.

Uniformity versus flexibility is an important accounting value dimension as it relates to the attitudes about uniformity, comparability and consistency. It is argued that uniformity can be linked to the uncertainty avoidance and individualism dimensions. This is because a preference for uniformity is in line with a preference for strong uncertainty avoidance, written rules and regulations as well as conformity.

Gray (1988) argues that the accounting value dimension *conservatism versus optimism* would seem to be important as it is arguably *"the most ancient and probably the most pervasive principle of accounting valuation"* (Sterling, 1967, p. 110). The degree to which conservatism is present in asset measurement and the reporting of profits varies depending on country, with France and Germany exhibiting a strongly conservative approach and the U.K. exhibiting less conservative attitudes (e.g. Nobes, 1984; Choi and Mueller, 1984; Arpan and Radebaugh, 1985). Gray (1988) argues that a preference for conservatism is consistent with a preference for uncertainty avoidance.

Secrecy versus transparency is an accounting value dimension related to the amount of information disclosed to outside stakeholders. The degree of secrecy seems to vary in different countries with some continental European countries having lower levels of disclosure compared to the U.K. (e.g. Choi and Mueller, 1984; Arpan and Radebaugh, 1985). Secrecy can most closely be linked to uncertainty avoidance, power distance and individualism dimensions. A preference for secrecy is in line with strong uncertainty avoidance, stemming from a need to restrict the information disclosure. Furthermore, the relationship with power distance is evident from the notion that high power distance societies are likely to restrict information flow to preserve power inequalities.

3.2.3 Gray's accounting systems

From these accounting values Gray (1988) puts together two accounting systems: *Authority and Enforcement* and *Measurement and Disclosure*. These accounting systems are depicted below in *Figure 2* and *Figure 3*.

The accounting values that are most relevant to the *Authority and Enforcement* for accounting systems are according to Gray (1988) the professionalism and uniformity dimensions. From *Figure 2*, it appears to be clear that that one can contrast the Anglo and Nordic culture with the Germanic and More Developed Latin culture where the main differences is found in more or less flexibility and uniformity while all four clusters have more professionalism than statutory control.

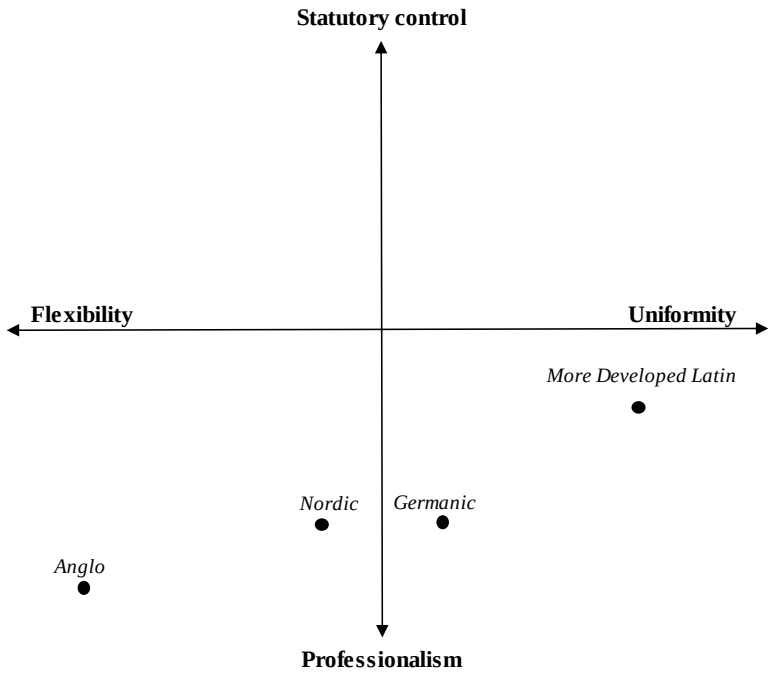

Figure 2 - Gray's (1988) Accounting Systems: Authority and Enforcement

The accounting values that are most relevant to the *Measurement and Disclosure* practices are according to Gray (1988) the conservatism and secrecy dimensions. As such, they can be combined and through a hypothesized classification of culture areas, the graph below is generated where one yet again can contrast the Anglo and Nordic culture with the Germanic and more developed Latin culture which can be found in different ends of the coordinate system below.

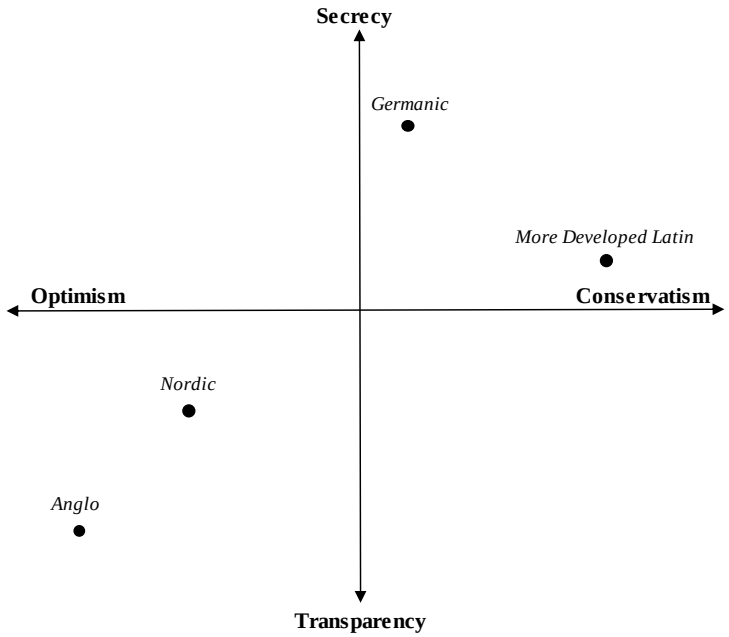

Figure 3 - Gray's (1988) Accounting Systems: Measurement and Disclosure

Salter and Niswander (1995) attempts to test the theory developed by Gray based on data from twenty-nine countries and find that Gray appears to have created an accurate theory in order to explain cross-national differences in accounting structure and practice. This has been found to be especially useful when explaining different financial reporting practices.

3.4 IFRS - a harmonization of accounting standards

As a reaction to the international differences and the effect it has had on the interpretation of financial reporting and international accounting, a process was initiated to promote the harmonization of accounting standards. Since 2001, IFRS has outlined a set of common rules so that financial statements can be consistent, transparent and comparable around the world. Listed companies in the member countries of the EU have to prepare their financial statements

in accordance to IFRS since December 2005 (Picker et al., 2016). In the Conceptual Framework, the IASB states the objective of general purpose financial reporting as:

> *"The objective of general purpose financial reporting is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders, and other creditors in making decisions about providing resources to the entity..."*
>
> (p. A27, OB2)

This is a universal definition of the objective of financial reporting which is now adopted by more than 100 countries around the world (IFRS, 2018).

3.5 Existence of different patterns in IFRS

The objective of the aforementioned initiative of IFRS to harmonize accounting practices was to reach greater comparability and transparency of financial reporting around the world. This is sometimes referred to as a *"revolution of financial accounting"* (Nobes and Zeff, 2008, p. 279). Even after accounting harmonization efforts, researchers have found that application of IFRS is not sufficient to guarantee consistency among financial reporting. During the implementation of IAS 32, IAS 39 and IFRS 7 significant differences in disclosure behavior was found between countries (Erkens 2016).

There have been arguments that a single set of accounting standards is not sufficient in order to reach a comparable financial reporting environment among the world (Ball et al. 2000; Ball et al. 2003; Holthausen 2003). Differences among national accounting traditions right before the adoption of IFRS have been established as persisting (Fifield et al., 2011; Aisbitt, 2006; Kvaal and Nobes, 2010). The differences which were identified before these mandatory adoption requirements came into effect are not new but have existed over several decades and also persisted even after previous harmonization efforts of international accounting (Camfferman and Zeff 2007).

Different studies have been made aiming at explaining the IFRS implementation. One study made by Yip and Young (2012) suggests that the implementation of IFRS has improved cross-country comparability where a degree of judgment allows for companies to account for

different transactions in different ways. Further, Yip and Young argue that these standards and improvements are more evident for companies operating within the same institutional environment. Hellman et al. (2015) provide further support for this when finding that cultural differences still existed in traditional international accounting systems at the time of initial IFRS adoption, even after long periods of harmonization and increased international accounting convergence.

Even though the objective of IFRS has been clear, the execution has differed. The reasons for the differences can be traced back to different influential factors which are not eliminated just because IFRS was initiated (Ball, 2016). The reporting practices may continue to differ also in the future due to interdependencies between reporting rules and institutional structures (Leuz, 2010). Furthermore, culture is something that change very little over time and in some cases hinders the financial accounting development (Doupnik and Salter, 1995).

4. HYPOTHESIS DEVELOPMENT

In this section, short motivations supporting the formulation of the hypotheses are presented. The hypotheses are all related to the effect on revenue and equity due to the implementation of IFRS 15 based on different cultures and sectors.

Although industry experts and practitioners have held different opinions regarding the expected magnitude of change due to the implementation of IFRS 15, most agree that some type of effect will arise. This is reasonable, as it lies in the nature of introducing a new revenue recognition standard, that revenue and equity of firms will be affected. Therefore, the first hypotheses are formulated as such:

H1a: *The adoption of IFRS 15 affects the total equity of firms*
H1b*: The adoption of IFRS 15 affects the total revenue of firms*

Previous research shows that although steps towards accounting and financial reporting harmonization have taken place, a single set of accounting standards might not be sufficient to achieve complete harmonization on an international level. Additionally, firms' reporting practices have been shown to be affected by cultural variables during the implementation of IFRS 7 (Erkens, 2016). It is therefore natural to expect that cultural values might affect the implementation of IFRS 15 as well. Thus, the second and third hypotheses are formulated to test contrasting cultures based on the accounting systems developed by Gray (1988).

H2a: *The effect on total equity, from adopting IFRS 15, is different for Anglo compared to more developed Latin cultures*
H2b: *The effect on total equity, from adopting IFRS 15, is different for Anglo compared to Germanic cultures*
H2c: *The effect on total equity, from adopting IFRS 15, is different for More Developed Latin compared to Nordic cultures*

H3a: *The effect on revenue, from adopting IFRS 15, is different for Anglo compared to More Developed Latin cultures*
H3b: *The effect on revenue, from adopting IFRS 15, is different for Anglo compared to Germanic cultures*
H3c: *The effect on revenue, from adopting IFRS 15, is different for More Developed Latin compared to Nordic cultures*

Several articles have discussed the role of cultural influences on accounting (Gray, 1988 and Erkens, 2016). Recent articles show that the implementation of a new standard can be affected by national accounting practice that existed before the IFRS was introduced (Kvaal and Nobes, 2010; Erkens, 2016). Similarly, it has been recognized that IFRS 15 is likely to affect different firms and different industries to a varying degree (FASB, 2017). Therefore, two hypotheses are developed investigating whether the effect on equity is affected by sector and country.

H4a: *The effect on total equity, from adopting IFRS 15, is affected by country*
H4b: *The effect on total equity, from adopting IFRS 15, is affected by sector*

H5a: *The effect on revenue, from adopting IFRS 15, is affected by country*
H5b: *The effect on revenue, from adopting IFRS 15, is affected by sector*

Theories have stated that countries with a strong tradition of widespread shareholder ownership structure and limited access to internal information, often exhibit greater pressure and subsequent supply of disclosure (Nobes and Parker, 2016). In contrast, for countries where credit-insider systems are dominating, less pressure and therefore also less supply of disclosure have been identified. The effects of IFRS 15 have also been predicted to be affected by sector. Therefore, two final hypotheses are formulated to investigate if the choice of method is affected by country and sector.

H6a: *The choice of full retrospective method or modified retrospective method is affected by country*
H6b: *The choice of full retrospective method or modified retrospective method is affected by sector*

5. METHOD

In this section, the methodology and design used in this study will be presented. The underlying assumptions for the quantitative approach used will be described in the first section before continuing with a description of the sample selection. Thereafter, a description of how the data has been selected and collected is presented. Finally, the statistical methods and non-statistical methods used to present the data and findings are outlined.

5.1 Sample and data

5.1.1 Initial firm selection

This thesis aims to study the effects of the implementation of IFRS 15 using data from 250 stock listed companies. The companies chosen for this study are the 50 largest in each of the United Kingdom, France, Germany, Italy and Sweden based on market capitalization. Since the aim of the study is to do a cross-country comparison that is based on cultural differences, at least one (two in the *More Developed Latin* cultural area) country from each cultural area based on Gray's (1988) classification of cultural areas is selected. In line with Gray's (1988) cultural areas, the countries included in this study are divided into each of the four cultural areas where the U.K. belongs to *Anglo*, Germany belongs to *Germanic*, France and Italy belong to *More Developed Latin* and Sweden belongs to *Nordic*. In this study, countries will be used as a proxy for culture.

In order to make a selection of firms that can be compared across countries, the same methodology is used when selecting the firms in each country. The firms included from the U.K., France, Germany and Italy are solely hand-collected and the companies are chosen based on the largest companies set to market capitalization as of 1st of September 2018. The firms from the U.K., France, Germany and Italy, are collected from indices including FTSE 100 (U.K.), FTSE MIB (Italy), FTSE Italia MID Cap (Italy), CAC 20 (France), CAC 40 (France), CAC Large and Mid 60 (France), DAX 30 MDAX 60 (Germany).

The Swedish data however, was first hand-collected by Tomas Hjelström and Anja Hjelström. This data was later complemented through a hand collection by the authors, in the same manner as for France, Germany, Italy and the U.K. The Swedish data that was initially provided by Tomas Hjelström and Anja Hjelström included all listed large- and midcap firms as of 20 July 2018. However, the firms used in this study are only the 50 largest of these (based on market

capitalization). The market capitalization used for these firms are the closing values 1st of January 2018.

5.1.2 Sector classification

In order to make the selection of firms comparable, the North American Industry Classification System (NAICS) is used. Based on this system, economic units that have similar production processes are classified as the same sector. NAICS is a classification of business establishments by type of economic activity. One of the purposes of this classification system is to facilitate analyses of relationships in the economy. In total, NAICS divide firms into 20 sectors which are listed in *Appendix A.*

5.1.3 Reasons for exclusion

Firms with a sector belonging of either *Finance and Insurance* or *Real Estate and Rental and Leasing* (based on NAICS index), are excluded. Secondly, firms that are cross listed between multiple stock exchanges are only collected once, in the country where it has its main listing in order to avoid double counting. Thirdly, firms with broken fiscal year so that no interim reports applying IFRS 15 are available, are also excluded. Companies that solely use US GAAP as an accounting standard are excluded due to the fact that no analysis of the effects of IFRS 15 can be made.

In total, 112 firms are excluded. The majority of the excluded firms, 82 in total, are excluded due to sector classification. Out of these 82 firms, 62 are excluded due to the firm belonging to the *Finance and Insurance* sector and 20 are excluded due to the firm belonging to the *Real Estate and Rental and Leasing* sector. The second most common reason for exclusion is due to a broken fiscal year, in which the standard has not yet been applied or the first interim report has not yet been released. Three firms are excluded because they use US GAAP and not IFRS. Two firms are excluded due to cross-listings from the countries where the companies do not have their main listings. A table stating the reasons for exclusion and what country the excluded firms come from can be found in *Appendix B.*

5.1.4 Final sample

The final sample consists of 250 firms which are all equally divided between the U.K., Germany, France, Italy and Sweden. Based on the NAICS index, 14 industries are included in our final sample of firms. The majority of firms collected adhere to the Manufacturing sector (49,6 %) whereas only one (0,4%) firm belongs to the *Educational services* sector. A table stating country of origin and sector belonging can be found in *Appendix C*, and a cross disclosure of sectors and countries can be found in *Appendix D*.

5.2 Data collection

5.2.1 Data sources

The majority of the data used for the selection process are a mixture of hand collected data and data retrieved from the database Thomson Reuters. The data collected from Thomson Reuters in the selection process include names of companies, market capitalization and sector belonging (and for the sector *Manufacturing*, also sub sector belongings) according to NAICS.

All accounting data is collected by hand from public annual- quarterly- and half-year reports and in some cases also separate IFRS releases or documents. Since every company has its own structure of its different reports and other official documents, a standardized collection process cannot be used. For example, all companies across the five countries do not release quarterly reports, but in some cases only half-year reports. Other companies describe the transition to IFRS 15 in separate transition documents and releases which are also used if the reports have been incomplete sources of information.

5.2.2 Data collection methodology

The hand collected accounting data from annual reports for this study include total equity, total assets and total liabilities before transition to IFRS 15. For the purpose of testing the hypotheses related to the effect on equity and revenue, data from the quarterly- and half-year reports from both 2018 and 2017 are collected in order to analyze the shift. The first data point collected is according to which of the two methods, *full retrospective method* or *modified retrospective method*, the companies have chosen to use. This is because the data collection differs significantly based on choice of method. When a company chooses to apply the *full*

retrospective method provided by IFRS 15, all contracts that were not yet completed at the beginning of that period need to be restated and presented (with certain limited practical expedients available). When applying the *modified retrospective method*, a company can retain prior period figures as reported under the previous standards and recognize the cumulative effect of applying IFRS 15 as an adjustment to the opening balance of equity.

5.2.3 Data collection full retrospective method

For firms that have opted for the *full retrospective method* data is collected from the first available financial reports for 2018 (quarterly or interim), the annual report of 2017 and the corresponding financial report for 2017 (quarterly or interim). The data points collected include: restated revenue for the corresponding period 2017, originally reported revenue for the corresponding period 2017, restated opening total assets 2018, originally reported opening total assets 2018, restated opening total equity 2018, originally reported opening total assets 2018, restated opening total liabilities 2018, originally reported opening total liabilities 2018, reported revenue for the period 2018, revenue for the period 2018 as if IFRS 15 was not applicable, any practical expedient used, revenue segments in 2018 and revenue segments in 2017.

5.2.4 Data collection modified retrospective method

For firms that have opted for the *modified retrospective method*, data is collected from the first available financial reports for 2018 (quarterly or interim), the annual report of 2017 and the corresponding financial report for 2017 (quarterly or interim). The data points collected include: effect on retained earnings, effect on total assets, effect on liabilities, restated opening total assets 2018, originally reported opening total assets 2018, restated opening total equity 2018, originally reported opening total assets 2018, restated opening total liabilities 2018, originally reported opening total liabilities 2018, originally reported revenue for the period 2018, revenue for the period 2018 as if IFRS 15 was not applicable, any practical expedient used, stated effect on financial numbers, revenue segments in 2018 and revenue segments in 2017.

5.3 Data processing

5.3.1 Using the index of comparability (IC) or the "Gray index"

The index of comparability (IC) is used to test the hypotheses and to investigate the potential effects on equity and revenue from the adoption of IFRS 15. The index was originally called the conservatism index and was developed by Gray (1980). Since its creation the index has been recalibrated to include metrics that makes the name index of comparability more suitable (Hellman et al., 2015).

The purpose of the index developed by Gray (1980) is to achieve comparability for the same firm during the same year under two different accounting regimes. The IC is a tool that can be used to facilitate quantitative analyses of differences between financial reporting practices. This can be done by comparing disclosed amount of revenue or shareholders equity for a firm in a given country under different accounting standards, such as for example in this case – pre and post IFRS 15. The index has been widely used in previous studies (Adams et al., 1999; Hellman et al., 2015). In this study, the index has been calculated as follows:

$$IC_{EQUITY} = 1 - \left(\frac{EQUITY_{PRE\ IFRS\ 15} - EQUITY_{IFRS\ 15}}{EQUITY_{PRE\ IFRS\ 15}}\right)$$

$$IC_{REVENUE} = 1 - \left(\frac{REVENUE_{PRE\ IFRS\ 15} - REVENUE_{IFRS\ 15}}{REVENUE_{PRE\ IFRS\ 15}}\right)$$

The accounting standard used before the adoption of IFRS 15 is denoted *pre IFRS 15*, the accounting standard IFRS 15 is denoted *IFRS 15*, total shareholders' equity is *Equity* and revenue is denoted *Revenue*.

The way this index should be interpret is that a value less than 1 indicates that shareholders' equity or revenue is lower under IFRS 15 than under previous IFRS standards. A value that is greater than 1 indicates that shareholders' equity or revenue is higher under IFRS 15 than under previous IFRS standards. An index value of 1 means that there is no difference in equity or revenue under IFRS 15 compared to previous IFRS standards.

5.3.2 Revenue

Due to the fact that some firms use a broken fiscal year and that some firms release only interim reports whereas others release quarterly reports, the collected revenue data differs to some extent in terms of periods. For a firm that releases quarterly reports, the restated and the originally reported revenue for the first quarter of 2017 or 2018 is collected. However, for a firm that only releases interim reports, the restated and the originally reported revenue for the first half of 2017 or 2018 is collected. This discrepancy in periods is however mitigated by the IC where the revenue is compared to revenue adhering to the same corresponding time period.

5.3.3 Calculating the variables leverage and size

Two variables are not directly hand collected from firms' financial reports but are derived using data retrieved from the financial reports. The *Leverage* variable of each firm is calculated by taking the book value of total debt as of December 31st, 2017 divided by the book value of total shareholder equity as of December 31st, 2017. When calculating the variable *Size* for each firm, two separate steps are taken. Since the total assets of firms are collected in different currencies, the first step is to convert each reported number to a common currency (in this case Euro). The second step is that *Size* is calculated as the natural logarithm of total assets as of December 31st, 2017.

5.4 Statistical methods

The hypotheses developed in section four are tested using a univariate test, non-parametric tests, a multiple logistic regression and through a multiple ordinary least square regression analysis. The univariate tests and the non-parametric tests are used to assess H1a, H1b, H2a, H2b, H2c, H3a, H3b and H3c. In order to analyze H4a, H4b, H5a, H5b, H6a and H6b, multiple logistic regression analyses and multiple ordinary least square regression analyses are performed. This is done because the univariate tests only yield information to if the effects of equity or revenue is significantly different from zero for a population. The multiple logit regression and the multiple ordinary least square regression allows for testing several variables in relation to one another with the aim to assess if the results from the univariate analyses are still valid and to add depth to the final discussion.

5.4.1 Descriptive statistics of variables

Table 3 shows a summary of the descriptive statistics for the independent variables and the control variables used in the multivariate regressions. All independent variables are dummy variables, which take the form of either 1 or 0. The dummy variables can be divided into three broad types, *Country Dummies, Sector Dummies consisting of and Sub-Sector Dummies*. The dummies take the form of 1 if a certain observation belongs to a given category and 0 if it does not. The variable Germany therefore takes on the value 1 if the data point is collected from Germany simultaneously as the variable France takes on the value of 0 for that same data point. The *Country Dummies* all have a mean of 0,2 indicating that the number of data points from each country is identical. The *Sector Dummy, Manufacturing* has a mean of 0,5 illustrating that almost half of the data points adhere to the manufacturing sector. The Sub-Sector Dummies all have low means indicating that they are spread rather equally, with Chemical and Transportation Equipment having slightly higher means indicating that they include slightly more observations than the rest. D/E is on average 177,9%, however the variable ranges widely from 8% to 1516%. The Q1 of 136% and the Q3 of 234% further indicates that most firms have a leverage that is relatively close to the mean with the maximum of 1516% being rather unique.

Table 1 – Independent and Control Variables

	N	Data	Mean	Std. Dev	Min	Q1	Median	Q3	Max
France	250	Dummy	0,200	0,400	0	0	0	0	1
Germany	250	Dummy	0,200	0,400	0	0	0	0	1
Italy	250	Dummy	0,200	0,400	0	0	0	0	1
U.K.	250	Dummy	0,200	0,400	0	0	0	0	1
Sector Variables									
Administrative and Support and Waste Mgmt. and Remediation Svcs.	250	Dummy	0,020	0,140	0	0	0	0	1
Arts, Entertainment, and Recreation	250	Dummy	0,010	0,090	0	0	0	0	1
Construction	250	Dummy	0,030	0,170	0	0	0	0	1
Educational Services	250	Dummy	0,004	0,060	0	0	0	0	1
Health Care and Social Assistance	250	Dummy	0,004	0,060	0	0	0	0	1
Information	250	Dummy	0,100	0,300	0	0	0	0	1
Manufacturing	250	Dummy	0,500	0,500	0	0	1	1	1
Mining, Quarrying, and Oil and Gas Extraction	250	Dummy	0,050	0,220	0	0	0	0	1
Professional, Scientific and Technical Services	250	Dummy	0,060	0,240	0	0	0	0	1
Retail Trade	250	Dummy	0,050	0,220	0	0	0	0	1
Transportation and Warehousing	250	Dummy	0,040	0,200	0	0	0	0	1
Utilities	250	Dummy	0,070	0,250	0	0	0	0	1
Wholesale Trade	250	Dummy	0,030	0,170	0	0	0	0	1
Man. Subsector Variables									
Apparel Man.	250	Dummy	0,042	0,201	0	0	0	0	1
Beverage and Tobacco Product Man.	250	Dummy	0,034	0,180	0	0	0	0	1
Chemical	250	Dummy	0,218	0,413	0	0	0	0	1
Computer and Electronic Product Man.	250	Dummy	0,084	0,277	0	0	0	0	1
Electrical Equipment, Appliance, and Component Man.	250	Dummy	0,017	0,129	0	0	0	0	1
Fabricated Metal Product Man.	250	Dummy	0,017	0,129	0	0	0	0	1
Food Man.	250	Dummy	0,025	0,157	0	0	0	0	1
Leather and Allied Product Manufacturing	250	Dummy	0,034	0,180	0	0	0	0	1
Machinery Man.	250	Dummy	0,109	0,312	0	0	0	0	1
Miscellaneous Man.	250	Dummy	0,042	0,201	0	0	0	0	1
Nonferrous Metal (except Aluminum) Smelting and Refining	250	Dummy	0,008	0,091	0	0	0	0	1
Nonmetallic Mineral Product Man.	250	Dummy	0,017	0,129	0	0	0	0	1
Paper Man.	250	Dummy	0,067	0,250	0	0	0	0	1
Petroleum and Coral Products Man.	250	Dummy	0,025	0,157	0	0	0	0	1
Plastics and Rubber Products Man.	250	Dummy	0,042	0,201	0	0	0	0	1
Primary Metal Man.	250	Dummy	0,050	0,219	0	0	0	0	1
Transportation Equipment Man.	250	Dummy	0,168	0,374	0	0	0	0	1
Control variables									
Size	250	Continuous	9,11	1,5	5,12	8,04	9,02	10,32	12,73
D/E	250	Continuous	1,78	1,56	0,08	0,94	1,36	2,34	15,16

Table 1 shows the independent and the control variables used in the statistical tests. Descriptive statistics for all variables are shown.

Since all the explanatory variables in the multivariate regressions consist of dummy variables, no Pearson correlation table is presented as it is inherent in the nature of Dummy variables of the same category that they do not correlate. However, a test was conducted for the two control variables *Size* and *D/E* showing a correlation of 0,286 that is statistically significant and thus no problem with multicollinearity seems to be present.

5.4.2 Univariate analyses

In order to test H1a and H1b Student's t-tests are conducted. The student's t-test can be used to test if the mean of a group is statistically significantly different from 0. In this case the mean percentage change in equity and revenue after the adoption of IFRS 15 is tested. The t statistic is calculated as:

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{S^2\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

where $\bar{X}_1$ represents the mean of the sample, $\bar{X}_2$ is the theoretical mean, in our case 0, S represents the sample standard deviation and the sample size is the n.

In a two-tailed test the null hypothesis is rejected if:

$$< -z_{\propto/2}$$

or

$$> z_{\propto/2}$$

5.4.3 Non-parametric tests – Wilcoxon's signed rank test

To complement the student's t-test and to further test H1a and H1b, Wilcoxon's signed rank tests are performed. When the size of the sample is large, the normal distribution provides a good approximation to the Wilcoxon statistic T's distribution (Newbold et al., 2013). The Wilcoxon's signed rank test has a mean and a variance which are given by:

$$E(T) = \mu_T = \frac{n(n+1)}{4}$$

$$Var(T) = {\sigma^2}_T = \frac{n(n+1)(2n+1)}{24}$$

When sample sizes are large, Z is approximately normally distributed as:

$$Z = \mu_T = \frac{T - \mu_T}{\sigma_T}$$

In this equation, the observed value of the Wilcoxon statistic is the T, the mean is μ_T and the variance is σ_T (Newbold et al., 2013).

5.4.4 Non-parametric tests – Mann-Whitney U tests

In order to test H2a, H2b and H2c Mann-Whitney U tests are performed to compare the means of the effect on equity between cultures on different ends of Gray's accounting cultural dimensions. The distribution of the test reaches normality swiftly when the sample size grows above 10 observations (Newbold et al., 2013). In these tests, all sample sizes are above 35 and it can therefore be assumed that the distribution is normal when the tests are performed. In the Mann-Whitney U test the test statistic U has been calculated as follows:

$$U = n_1 n_2 + \frac{n_1(n_1+1)}{2} - R_1$$

Where U is the statistic, n is the size of the sample for each group tested and R1 is equal to the sum of all the ranks of the observations from the first population. The mean and the variance for the Mann-Whitney U is derived as follows:

$$E(U) = \mu_U = \frac{n_1 n_2}{2}$$

$$Var(U) = {\sigma^2}_U = \frac{n_1 n_2 (n_1 + n_2 + 1)}{12}$$

For large samples, (as in the case of this study) the distribution of the random variable is approximately normally distributed as such:

$$Z = \frac{U - \mu_U}{\sigma_U}$$

(Newbold et al., 2013)

5.4.5 Multiple regression analysis - OLS

To test H4a, H4b H5a and H5b multivariate ordinary least square regressions are performed. This is done in order to add depth to how firm characteristics, country and sector factors affect the change in equity and revenue. Four separate OLS-regressions are conducted. One with the dependent variable *effect on equity* and the independent variables *country dummy variables*. Another OLS-regression has the dependent variable *effect on revenue* and the independent variables c*ountry dummy variables*. A third one has the dependent variable *effect on equity* and the independent variables *sector dummy variables* and the final has the dependent variable *effect on revenue* and the independent variables *sector dummy variables.* The OLS-regressions are thus as follows:

Effect on Equity

$$= \beta_0 + \beta_1 France_i + \beta_2 Germany_i + \beta_3 Italy_i + \beta_4 The\ U.K._i + \beta_5 Leverage_i + \beta_6 Size_i + \varepsilon_i$$

Effect on Equity

$$= \beta_0 + Ind1_i + \beta_2 Ind2_i + \beta_3 Ind3_i + \beta_4 Ind4_i + \beta_5 Ind5_i + \beta_6 Ind6_i + \beta_7 Ind7_i + \beta_8 Ind8_i + \beta_9 Ind9_i + \beta_{10} Ind10_i + \beta_{11} Ind11_i + \beta_{12} Ind12_i + \beta_{13} Ind13_i + \beta_{14} Leverage_i + \beta_{15} Size_i + \varepsilon_i$$

Effect on Revenue

$$= \beta_0 + \beta_1 France_i + \beta_2 Germany_i + \beta_3 Italy_i + \beta_4 The\ U.K._i + \beta_5 Leverage_i + \beta_6 Size_i + \varepsilon_i$$

Effect on Revenue

$$= \beta_0 + Ind1_i + \beta_2 Ind2_i + \beta_3 Ind3_i + \beta_4 Ind4_i + \beta_5 Ind5_i + \beta_6 Ind6_i + \beta_7 Ind7_i + \beta_8 Ind8_i + \beta_9 Ind9_i + \beta_{10} Ind10_i + \beta_{11} Ind11_i + \beta_{12} Ind12_i + \beta_{13} Ind13_i + \beta_{14} Leverage_i + \beta_{15} Size_i + \varepsilon_i$$

The outcome of adopting IFRS 15 has evidently been hard to predict since both industry experts and IASB alike have not been able to give firm information about what is to be expected. The lack of clear guidance from IASB and industry experts makes the prediction of the independent variables correlation with the dependent variable hard to establish. However, research has

shown that cultural variables affected the adoption of IFRS 7 (Erkens, 2016). In addition, FASB predicted the effect of IFRS 15 to differ depending on sector (FASB, 2017). Thus, the following null hypotheses and alternative hypotheses are formulated for the country regressions:

$H_0 = \beta_1 \neq 0;\ \beta_2 \neq 0;\ \beta_3 \neq 0;\ \beta_4 \neq 0$

$H_1 = \beta_1 = 0;\ \beta_2 = 0;\ \beta_3 = 0;\ \beta_4 = 0$

The corresponding hypotheses and alternative hypotheses for the Sector regressions are formulated as such:

$H_0 = \beta_1 \neq 0;\ \beta_2 \neq 0;\ \beta_3 \neq 0;\ \beta_4 \neq 0;\ \beta_5 \neq 0;\ \beta_6 \neq 0;\ \beta_7 \neq 0;\ \beta_8 \neq 0;\ \beta_9 \neq 0;\ \beta_{10} \neq 0;\ \beta_{11} \neq 0;\ \beta_{12} \neq 0;\ \beta_{13} \neq 0$

$H_1 = \beta_1 = 0;\ \beta_2 = 0;\ \beta_3 = 0;\ \beta_4 = 0;\ \beta_5 = 0;\ \beta_6 = 0;\ \beta_7 = 0;\ \beta_8 = 0;\ \beta_9 = 0;\ \beta_{10} = 0;\ \beta_{11} = 0;\ \beta_{12} = 0;\ \beta_{13} = 0$

For the country OLS-regressions *Sweden* is used as the baseline and for the sector OLS-regression *Accommodation and Food Services* is used as the baseline. The sector variable *Educational Services* was excluded because of a lack of data for the variable *choice of method*.

5.4.6 Multiple regression analysis - Logit regression

In order to test H6a and H6b multiple logistic regressions are performed. Logit regressions are used since the outcome is binary, either the *full-* or the *modified retrospective method* is applied. The dependent variable is *Full* and is a dummy variable for using the *full retrospective method* or the *modified retrospective method*. The variable takes the value 1 if the firm has used the *full retrospective method* and a 0 if the firm has used the *modified retrospective method*. The independent variables are *France*, *Germany*, *Italy* and *U.K.* which are all *country dummy variables*. In a separate logit regression *sector dummy variables* are used as the independent variables. In both regressions two control variables are used. These two control variables are *Size* which is the natural logarithm of *total assets* and *D/E* which is the book value of debt divided by the book value of equity in percentages. Thus, the two logarithmic models are as follows:

Prob (Full Retrospective Method)

$$= \beta_0 + \beta_1 France_i + \beta_2 Germany_i + \beta_3 Italy_i + \beta_4 The\ U.K._i + \beta_5 Leverage_i + \beta_6 Size_i + \varepsilon_i$$

Prob (Full Retrospective Method)

$$= Ind1_i + \beta_2 Ind2_i + \beta_3 Ind3_i + \beta_4 Ind4_i + \beta_5 Ind5_i + \beta_6 Ind6_i + \beta_7 Ind7_i + \beta_8 Ind8_i + \beta_9 Ind9_i + \beta_{10} Ind10_i + \beta_{11} Ind11_i + \beta_{12} Ind12_i + \beta_{13} Ind13_i + \beta_{14} Leverage_i + \beta_{15} Size_i + \varepsilon_i$$

The β_x coefficients in the logistic regression models are log-odds and when made exponential they become odds ratios. The odds ratio gives an approximation of how much more, or less likely, it is for the outcome to take on the value 1 or 0, which in this case means using the *full retrospective method* (1) or *modified retrospective method* (0). If the odds ratio is >1 this means that the odds of the firm having used the *full retrospective method* increases. Similarly, when the log-odds are negative this means that the odds ratios are < 1, indicating that the odds of the firm having used the *full retrospective method* decreases (Hosmer, Lemeshow & Sturdivant, 2013).

Based on previous literature and Gray (1988) it is expected that Germany, France and Italy, that traditionally have had more secrecy will have a negative correlation with using the *full retrospective method* whereas The U.K. that has traditionally had more transparency will have a positive correlation with using the *full retrospective method*.

For the country, logistic regressions *Sweden* is used as the baseline and for the sector logistic regression *Accommodation and Food Services* is used as the baseline. The sector variable *Educational Services* is excluded because of a lack of data for the variable *choice of method*.

6. RESULTS

This section aims to present the empirical results of this study, focusing on the effects of IFRS 15 in different cultures and sectors. The initially stated hypotheses will be tested in a chronological order in line with how they were presented under the previous section "Hypothesis Development". In addition to the testing of the hypotheses, additional findings from the collected data that add value to the overall research question will be presented.

6.1 Tests on the effect on equity and revenue from IFRS 15 adoption

To test H1a and H1b and determine whether the adoption of IFRS 15 has had a statistically significant effect on total equity and revenue of firms, Student's t-tests and Wilcoxon's signed rank tests are conducted. In *Table 2*, the mean and the median of the samples are included in addition to the significance level of each test. Outliers are excluded from the samples in the T-tests since the samples do not follow a normal distribution. In contrast, the nonparametric tests (Wilcoxon's signed rank tests) consists of the full sample, which means that no outliers are excluded.

6.1.1 Student's t-tests of the effect on IC of equity

Table 2 shows the Student's t-tests and Wilcoxon's signed rank tests for the IC of equity. When excluding the outliers from the total sample, the t-test show that the mean is -0,20% which is different from 0 at a 1% significance level. Thereby this supports H1a and concludes that the adoption of IFRS 15 has had an effect on the equity of firms.

Table 2 - Student's t-tests and Wilcoxon's Signed Rank Tests for the IC of Equity

		Student's t-test				Wilcoxon		
Country	**N**	**Mean**	**Std. Dev**	**t-statistics**	**p**	**N**	**Median**	**p**
Sweden	35	-0,02%	0,06%	-1,893	0,067	49	0,00%	0,879
Germany	39	-0,06%	0,19%	1,842	0,073	46	0,00%	0,003
U.K.	41	0,03%	0,20%	0,882	0,383	44	0,00%	0,124
France	39	-0,14%	0,24%	-3,641	0,001	47	0,00%	0,023
Italy	42	-0,40%	1,88%	-1,38	0,175	50	0,00%	0,001
Total*	218	-0,20%	0,82%	-3,616	0,000	236	0,00%	0,000
Sector								
Accommodation and Food Services	3	0,25%	0,43%	-1	0,423	3	0,00%	0,317
Adm. and Support and Waste Mgmt. and Remediation Services	3	0,00%	0,00%	n/a	n/a	5	0,00%	0,655
Arts, Entertainment, and Recreation	2	0,00%	0,00%	n/a	n/a	2	n/a	n/a
Construction	5	-0,19%	0,30%	-1,449	0,221	7	0,00%	0,465
Educational Services	1	0,00%	0,00%	n/a	n/a	1	0,00%	n/a
Health Care and Social Assistance	2	0,20%	n/a	n/a	n/a	1	0,00%	n/a
Information	16	0,02%	0,12%	0,558	0,585	24	0,00%	0,770
Manufacturing	108	-0,18%	0,65%	-2,956	0,004	119	0,00%	0,000
Mining, Quarry, and Oil and Gas Ext.	11	-0,10%	0,22%	-1,536	0,156	12	0,00%	0,068
Professional, Scientific and Tec Svcs.	11	0,00%	0,00%	n/a	n/a	14	0,00%	0,593
Retail Trade	8	0,00%	0,00%	n/a	n/a	12	0,00%	1,000
Transportation and Warehousing	8	-0,14%	0,26%	-1,521	0,172	10	-0,07%	0,028
Utilities	14	-0,07%	0,15%	-1,8	0,095	16	0,00%	0,025
Wholesale Trade	5	0,00%	0,00%	-1	0,374	7	0,00%	0,593
Total**	n/a	n/a	n/a	n/a	n/a	233	0,00%	0,000
Subsector Manufacturing								
Apparel Man	5	0,00%	0,00%	n/a	n/a	5	0,00%	n/a
Beverage and Tobacco Product Man	4	0,12%	0,29%	0,823	0,471	4	0,00%	0,655
Chemical	20	0,36%	1,63%	0,988	0,336	26	0,00%	0,799
Computer and Electronic Product Man	10	-2,08%	2,90%	-2,274	0,049	10	-0,15%	0,043
Electrical Equipment, Appliance, and Component Man	2	0,00%	0,00%	n/a	n/a	2	0,00%	n/a
Fabricated Metal Product Man	2	-0,28%	0,40%	-1	0,5	2	-0,28%	0,317
Food Man	3	-0,11%	0,17%	-1,154	0,368	3	-0,03%	0,18
Leather and Allied Product Man	5	-0,39%	0,66%	-1,318	0,258	5	0,00%	0,18
Machinery Man	10	-0,13%	0,16%	-2,614	0,028	12	-0,01%	0,012
Miscellaneous Man	4	-0,05%	0,09%	-1	0,391	5	0,00%	0,18
Nonferrous Metal (except Aluminum) Smelting and Refining	1	0,00%	0,00%	n/a	n/a	1	0,00%	n/a
Nonmetallic Mineral Product Man	2	-0,01%	0,01%	-1	0,5	2	-0,01%	0,317
Paper Man	8	0,00%	0,00%	n/a	n/a	8	0,00%	n/a
Petroleum and Coral Products Man	3	0,00%	0,00%	n/a	n/a	3	0,00%	n/a
Plastics and Rubber Products Man	5	0,00%	0,00%	n/a	n/a	5	0,00%	n/a
Primary Metal Man	5	0,00%	0,00%	-1	0,374	6	0,00%	0,18
Transportation Equipment Man	17	-0,70%	1,67%	1,728	0,103	21	0,00%	0,004
Total**	108	-0,18%	0,65%	-2,956	0,004	119	0,00%	0,000

Table 2 illustrates the effects of the adoption of IFRS 15 on equity. The change in equity is tested through one sample t-tests and Wilcoxon's signed rank tests. In the t-tests, outliers have been excluded based on a percentile analysis. All observations with valid data are included in the Wilcoxon's signed rank tests. The table does not include missing data.

6.1.2 Student's t-tests of the effect on IC of revenue

Table 3 shows the Student's t-tests and the Wilcoxon's signed rank tests for IC of revenue. The tests are conducted using the IC of revenue as the dependent variable. It is notable that many of the samples are relatively small, especially for the t-tests of different industries. The t-test of the total sample shows that the mean is different from 0 at a 1% significance level, which does support H1b. Furthermore, the Wilcoxon's signed rank test for the total sample shows that the mean rank of the sample is different from 0 at a 1% significance level, also supporting H1b.

Table 3 - Student's t-tests and Wilcoxon's Signed Rank Tests for the IC of Revenue

		Student's t-Test				Wilcoxon		
Country	**N**	**Mean**	**Std. Dev**	**T-statistics**	**p**	**N**	**Median**	**p**
Sweden	11	0,08%	0,09%	-2,975	0,014	18	0,00%	0,222
Germany	9	-1,05%	2,80%	-1,125	0,293	11	-0,57%	0,075
U.K.	10	-0,16%	0,23%	-2,196	0,056	17	-0,03%	0,532
France	21	-1,76%	2,21%	-3,656	0,002	23	-0,93%	0,007
Italy	13	-0,19%	0,81%	-0,848	0,413	16	0,00%	0,972
Total*	64	-0,39%	0,86%	-3,611	0,001	85	-0,14%	0,002
Sector								
Accommodation and Food Services	1	47,83%	n/a	n/a	n/a	1	47,83%	0,317
Adm. and Support and Waste Mgmt. and Remediation Services	2	-0,22%	0,31%	-1,000	0,500	2	-0,22%	0,317
Arts, Entertainment, and Recreation	0	n/a	n/a	n/a	n/a	0	n/a	n/a
Construction	5	-0,08%	0,10%	-1,963	0,121	6	-0,03%	0,715
Educational Services	0	n/a	n/a	n/a	n/a	0	n/a	n/a
Health Care and Social Assistance	0	n/a	n/a	n/a	n/a	0	n/a	n/a
Information	12	-0,38%	0,68%	-1,965	0,178	13	-0,32%	0,023
Manufacturing	34	-0,36%	1,24%	-1,700	0,98	42	-0,27%	0,005
Mining, Quarr, and Oil and Gas Ext	2	0,09%	0,13%	1,000	0,5	2	0,09%	0,317
Professional, Scientific and Tec Svcs.	8	-1,05%	2,41%	-1,237	0,256	8	-1,13%	0,237
Retail Trade	4	0,95%	1,26%	1,515	0,227	4	0,53%	0,144
Transportation and Warehousing	2	-0,16%	0,05%	-4,264	0,147	2	-0,16%	0,18
Utilities	5	1,53%	11,05%	-0,309	0,773	5	-0,88%	0,500
Wholesale Trade	0	n/a	n/a	n/a	n/a	0	n/a	n/a
Total**	64	-0,39%	0,86%	-3,611	0,001	85	-0,14%	0,002
Subsector Manufacturing								
Apparel Man	2	0,80%	1,13%	1,00	0,5	2	0,80%	0,317
Beverage and Tobacco Product Man	3	-11,42%	13,51%	-1,464	0,281	3	-3,87%	0,109
Chemical	3	-0,62%	0,68%	-1,587	0,254	3	-0,66%	0,285
Computer and Electronic Product Man	4	0,88%	2,17%	0,808	0,478	4	1,01%	0,465
Electrical Equipment, Appliance, and Component Man	0	n/a	n/a	n/a	n/a	0	n/a	n/a
Fabricated Metal Product Man	0	n/a	n/a	n/a	n/a	0	n/a	n/a
Food Man	2	0,44%	0,12968	4,788	0,131	2	0,44%	0,18
Leather and Allied Product Man	0	n/a	n/a	n/a	n/a	0	n/a	n/a
Machinery Man	6	-0,20%	0,20%	-2,436	0,059	9	-0,19%	0,093
Miscellaneous Man	2	-1,22%	0,08%	-20,908	0,03	2	-1,22%	0,18
Nonferrous Metal (except Aluminum) Smelting and Refining	0	n/a	n/a	n/a	n/a	0	n/a	n/a
Nonmetallic Mineral Product Man	0	n/a	n/a	n/a	n/a	0	n/a	n/a
Paper Man	0	n/a	n/a	n/a	n/a	0	n/a	n/a
Petroleum and Coral Products Man	1	0,00%	n/a	n/a	n/a	1	0,00%	n/a
Plastics and Rubber Products Man	0	n/a	n/a	n/a	n/a	0	n/a	n/a
Primary Metal Man	2	0,03%	0,04%	1,00%	0,50%	2	0,03%	0,317
Transportation Equipment Man	12	-2,87%	4,74%	-2,099	0,06	13	-0,60%	0,028
Total**	34	-0,36%	1,24%	-1,700	0,98	42	-0,27%	0,005

Table 2 illustrates the effects of the adoption of IFRS 15 on revenue. The change in revenue is tested through one sample t-tests and Wilcoxon's n signed rank tests. In the t-tests, outliers have been excluded based on a percentile analysis. All observations with valid data are included in the Wilcoxon's signed rank tests. The table does not include missing data.

6.2 Frequency tables illustrating the IC effect on equity and revenue

The following section presents the effect on the fiscal year-end equity and revenue in the form of index comparability (IC) for periods ending 31st of December 2017 or later. The IC of changes enables a direct comparability regardless of currency between the countries since it is evaluated in relative terms. The IC of equity and revenue is presented in frequency tables for all companies across the five different countries accumulated as well as for each country per se.

The IC effect on fiscal year equity for all of the 250 companies across the five different countries is shown in *Figure 4* and range from -80,4 % to +7,3%. The diagram below shows the frequency of the IC of equity presented in percentages where a cut-off value of -20% is introduced in an effort to give a better illustration of the results of the majority of the firms. Due to the cut-off value of -20%, the two companies that have -80,4% and -37,7% respectively, have a greater effect than what the figure illustrates. A trend towards a negative effect on the equity can be seen in *Figure 4*. Out of the entire sample, 24 companies show a positive effect on equity due to the implementation of IFRS 15 while 83 firms show a negative impact, and 129 companies report no effect on total equity. From the initial sample of 250 firms, 14 companies are excluded due lack of information about the effect on equity.

The accumulated IC effect on revenue is shown in *Figure 5* for the 85 firms that have valid data. Although one firm has an increase of 47, 83% most firms have a negative impact on their revenue with the largest negative effect being -27.02%. Thirty-two firms report a negative effect on revenue and 14 report a positive effect on revenue.

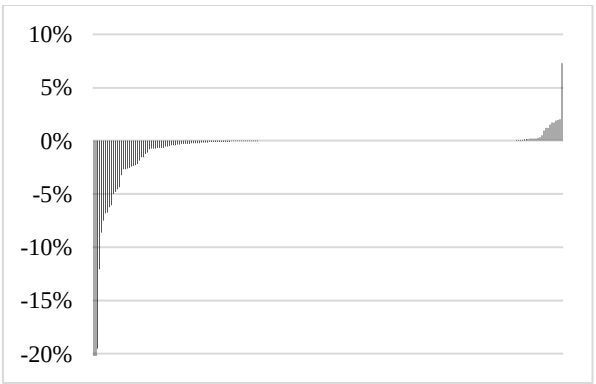

Figure 4 – Accumulated Effect on Equity

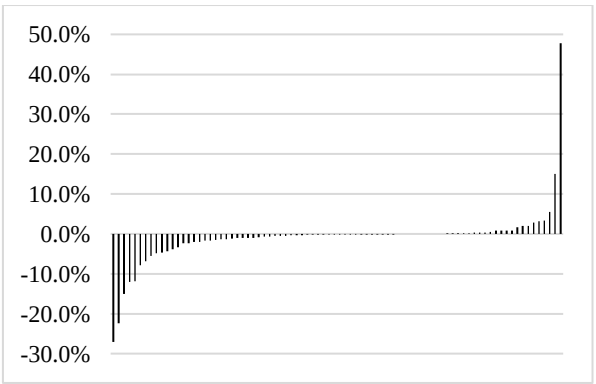

Figure 5 – Accumulated Effect on Revenue

The IC effect on fiscal year equity for firms in France ranges from -19,5 % to +2,0% which is illustrated in *Figure 6*. There is a trend towards a negative effect on equity, similar to the one found in the aggregated result. Out of the sample of 50 companies in France, four companies show a positive effect on equity, 21 companies show a negative impact and 22 did not experience a change in total equity. Three companies were excluded because no information about the effect could be identified.

The IC effect on revenue, for the 23 firms in France with valid data, is great as it ranges from 47,8% to - 11,9%. There is however, a clear negative trend as 17 firms report a negative effect and only four report a positive effect, as can be seen in *Figure 7*.

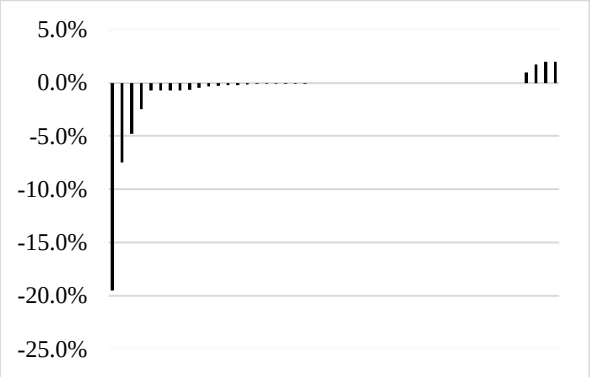

Figure 6 - France Effect on Equity

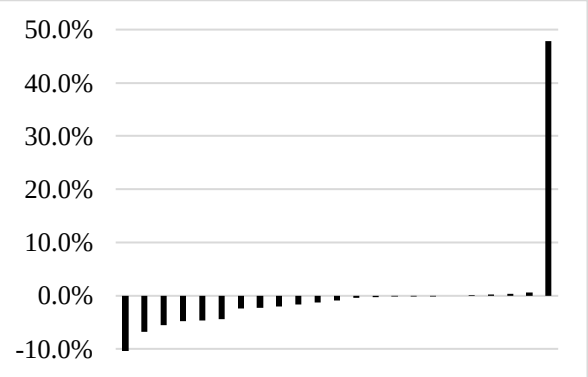

Figure 7 - France Effect on Revenue

The IC effect on fiscal year equity for Italy ranges from -12,1 % to +0,4% which is illustrated in *Figure 8* below. Also, here, a trend towards a negative effect on the equity, in line with the aggregated result is shown. Out of the sample of the 50 companies from Italy, four companies show a positive effect on equity due to the implementation of IFRS 15 while 19 companies show a negative impact and 27 companies show no effect from the new standard.

In Italy, the IC effect on revenue is reported for only 16 firms. It is shown in *Figure 9* that out of these 16 firms the effect was positive for six and negative for seven, indicating that there is no clear trend to be observed.

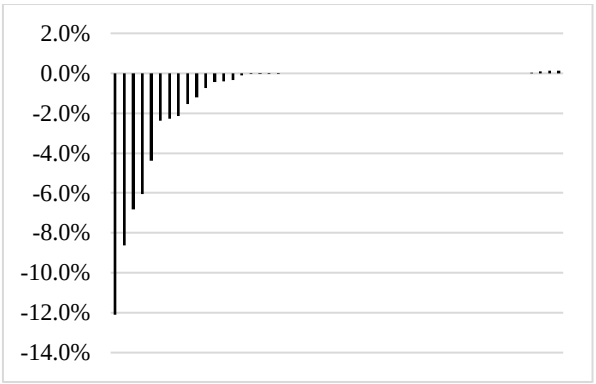

Figure 8 - Italy Effect on Equity

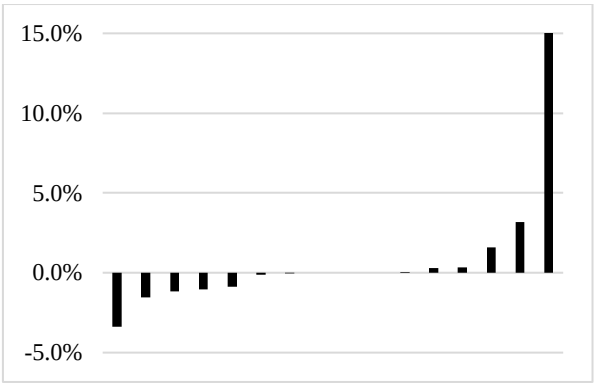

Figure 9 - Italy Effect on Revenue

For Germany, the IC effect on fiscal year equity range from -37,7 % to +0,3% which is illustrated in *Figure 10*. A trend towards a negative effect on the equity is found also in Germany. Out of the sample of 50 companies, six companies show a positive effect on equity, 20 companies show a negative impact and 20 companies did not experience a change in total equity. Four companies are excluded due to the lack of information about the effect on equity.

The IC effect on revenue in *Figure 11* is clearly negative. Only 11 firm observations have valid data and out of those nine report a negative effect on revenue and two report a positive effect.

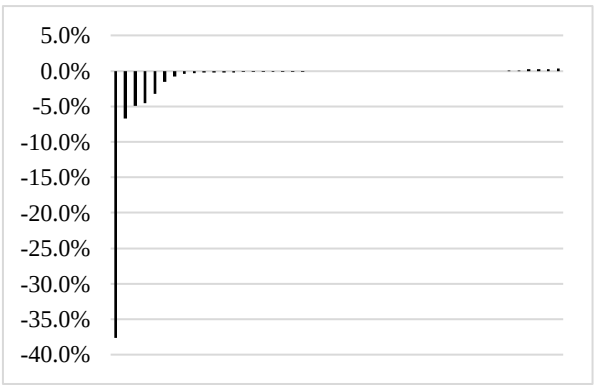

Figure 10- Germany Effect on Equity

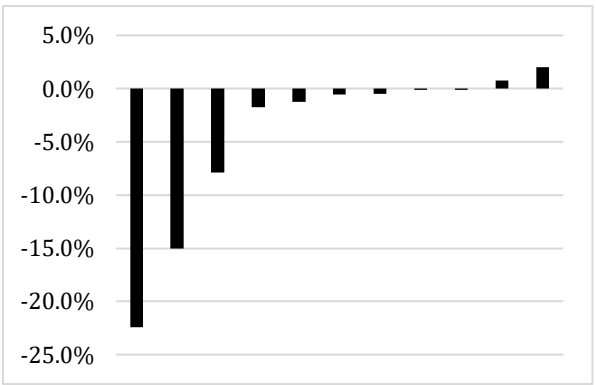

Figure 11 - Germany Effect on Revenue

The Swedish data shows an IC effect on fiscal year equity ranging from -2,6 % to +7,3% which is illustrated in *Figure 12*. Out of the total sample among all the countries included in this study, the most positive effect on equity is identified in Sweden. The overall negative trend was not as evident in Sweden as in the other countries. Out of the sample of 50 companies in Sweden, six companies show a positive effect on equity, 13 companies show a negative impact and 30

companies did not experience any change in total equity. One company is excluded due to a lack of information about the effect on equity.

The IC effect on revenue in Sweden, is shown in *Figure 13* and follows a clear negative trend with 11 reporting negative numbers out of the 18 observations with valid data. The most negative effect is -27,02% and only four firms report positive effects.

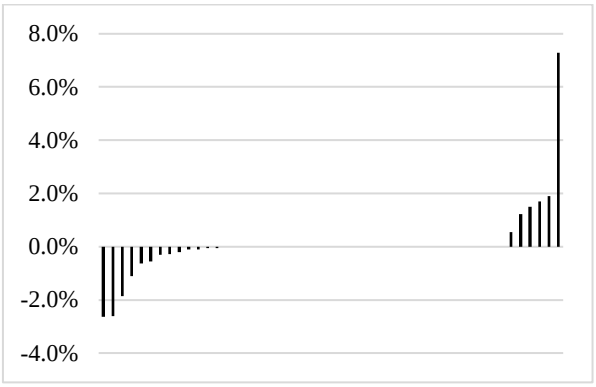

Figure 12 - Sweden Effect on Equity

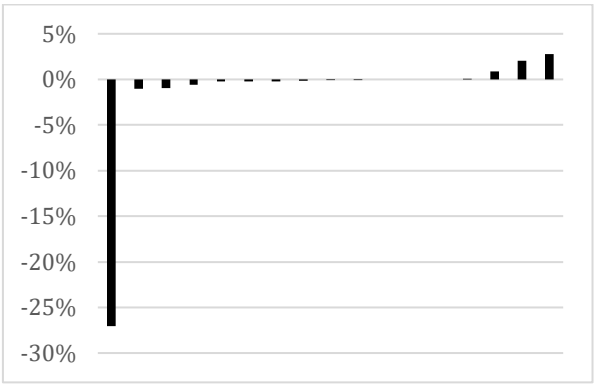

Figure 13 - Sweden Effect on Revenue

In the U.K., the IC effect on fiscal year equity ranges from -80,37 % to +1,19% which is illustrated in *Figure 14*. Out of the sample of 50 companies in the U.K., four companies show a positive effect on equity, 10 companies show a negative impact and 30 companies did not experience any change in total equity. Six companies were excluded because no information about the effect on equity could be identified.

The IC effect on revenue in the U.K. follows a negative trend as can be seen in *Figure 15*. Out of the 17 observations with valid data, 10 are negative and the most negative observation is -12,03%. Five observations have positive effects and the most positive observation is 5,49%.

Figure 14 – U.K. Effect on Equity

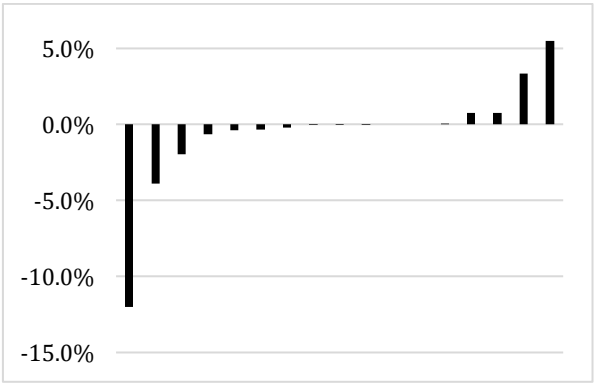

Figure 15 – U.K. Effect on Revenue

6.3 Tests on equity and revenue between cultures

In order to test H2a, H2b and H2c, Mann-Whitney U tests are conducted. Separate tests are conducted for both equity and revenue. These tests are conducted in order to test if the mean IC of equity and the mean IC of revenue for different samples are significantly different from each other.

6.3.1 Mann-Whitney U test for IC of equity

In *Table 4*, Anglo (U.K.) is tested against the More Developed Latin culture (France and Italy), Germanic culture (Germany) is tested against Anglo culture, and finally, Nordic culture (Sweden) is tested against the More Developed Latin culture. From *Table 4*, one can see that the mean effect on equity for the Anglo culture and more developed Latin culture are different from one another at a 10% significance level. Furthermore, the table also illustrates that the mean effect on equity for Nordic culture and more developed Latin culture are significantly different from one another at a 10% significance level as well, whereas the difference between Anglo culture and Germanic culture is not significant. These results support H2a and H2c but not H2b.

Table 4 – Mann-Whitney U Tests on Equity

	Nordic	More Developed Latin
Nordic	-	-1,693*
More Developed Latin	-	-
	Anglo	**More Developed Latin**
Anglo	-	-1,784*
More Developed Latin	-	-
	Anglo	**Germanic**
Anglo	-	-1,445
Germanic	-	-

*Table 4 shows Mann-Whitney tests comparing the mean of Change in Equity between observations grouped by culture. * denotes 10 % significance level, ** denotes 5 % significance level, *** denotes 1 % significance level*

6.3.2 Mann-Whitney test for IC of revenue

Mann-Whitney U tests are also conducted to test if the mean IC of revenue for different samples are significantly different from each other as predicted by H3a, H3b and H3c. In *Table 5*, the

Nordic culture is tested against the more developed Latin culture, the Anglo (U.K.) culture is tested against the more developed Latin (France and Italy) culture, and finally the Germanic (Germany) culture is tested against the Anglo culture. In *Table 5*, one can see that none of the Mann-Whitney U tests receive a statistical significance lower than 10%. These results do not support H3a, H3b or H3c, which therefore indicates that the effect on revenue is not different for different cultures.

Table 5 – Mann-Whitney U Tests on Revenue

	Nordic	More Developed Latin
Nordic	-	-0,954
More Developed Latin	-	-
	Anglo	**More Developed Latin**
Anglo	-	-0,692
More Developed Latin	-	-
	Anglo	**Germanic**
Anglo	-	-0,449
Germanic	-	-

Table 5 shows Mann Whitney U tests comparing the mean in change of revenue between observations grouped by culture. *denotes 10 % significance level,**denotes 5 % significance level,***denotes 1 % significance level

6.4 OLS-Regression testing country impacts on the effect on equity and revenue

Table 6 shows the ordinary least square regression with both the dependent variable *IC effect on equity* and next to it the regression with the dependent variable *IC effect on revenue*. For both regressions, the explanatory variables are the *Country Dummy Variables* and the control variables are *Size* and *Leverage*. The only variable that shows a statistically significant result is *Leverage*. Both in the first regression, relating to equity, and in the second regression, relating to the change in revenue, *Leverage* has a 1% significance level. All of the independent variables have a negative coefficient which is not statistically significant at a 10% level. The tests are conducted to test H4a and H5a, for which the low significance level of each coefficient concludes that H4a and H5a are not supported.

Table 6 – Country OLS-Regressions for Equity and Revenue

Variables	Change in Equity B	Change in Revenue B
France	-0,471	0,389
	(1,241)	(2,233)
Germany	-1,122	-3,556
	(1,277)	(2,811)
Italy	-0,814	1,21
	(1,339)	(2,841)
U.K.	-1,657	0,133
	(1,305)	(2,502)
Size	-0,092	0,03
	(0,302)	(0,614)
Leverage	-0,008***	-0,012**
	(0,003)	(0,005)
Constant	2,06	1,956
	(3,066)	(6,665)
R square	0,051	0,115
Adjusted R square	0,026	0,045
F	2,051	1,644

Table 6 shows the two OLS-regressions with the dependent variables Change in Equity and Change in Revenue. The independent variables are country dummy variables and the control variables are Leverage and Size. Also included are the R-square, adjusted R-square and the F-value.
** denotes 10 % significance level, ** denotes 5 % significance level, *** denotes 1% significance level*

6.5 OLS Regression testing sector impacts on the effect on equity and revenue

In *Table 7* there are three ordinary least square regressions. In the first regression the dependent variable is *IC effect on equity* and in the second regression the dependent variable is *IC effect on revenue*. Due to the presence of one extreme outlier in the regression with the dependent variable *IC effect on revenue*, a third regression is conducted for *IC effect on revenue* where outliers are removed. For the first regression the variable *Leverage* has a negative coefficient on a 1% significance level. In the second regression all the independent variables have negative coefficients that all are statistically significant on a 1% level. However, for the third regression where the outliers are removed, none of the variables have a coefficient that is statistically significant on a 1% level. Therefore, the results do not support H4b and H5b.

Table 7 - Sector OLS-Regressions for Equity and Revenue

Variables	Change in Equity B	Change in Revenue B	Change in Revenue outliers removed B
Administrative and Support and Waste Management and Remediation Services	0,772	-46,655***	0,287
	(3,714)	(5,160)	(0,657)
Arts, Entertainment, and Recreation	0,136	n/a	n/a
	(5,002)	n/a	n/a
Construction	-4,372	-45,71***	0,44
	(3,421)	(4,545)	(0,463)
Educational Services	0,169	n/a	n/a
	(6,615)	n/a	n/a
Health Care and Social Assistance	0,123	n/a	n/a
	(6,613)	n/a	n/a
Information	-0,760	-48,187***	n/a
	(2,791)	(4,353)	n/a
Mining, Quarrying, and Oil and Gas Extraction	-0,565	-47,4***	0,489
	(3,093)	(4,449)	(0,660)
Professional, Scientific and Technical Services	0,266	-48,418***	-0,837
	(2,985)	(4,449)	(0,429)
Retail Trade	0,021	-45,402***	0,861
	(3,058)	(4,709)	(0,560)
Transportation and Warehousing	-0,650	-46,421***	0,363
	*(3,159)	(5,161)	(0,657)
Utilities	0,411	-46,018***	0,154
	(2,977)	(4,712)	(0,668)
Wholesale Trade	-0,745	n/a	n/a
	(3,405)	n/a	n/a
Manufacturing	-0,768	-48,245***	0,03
	(2,565)	(4,266)	(0,294)
Size	0,049	0,039	-0,029
	(0,287)	(0,324)	(0,073)
Leverage	-0,008***	-0,011***	-0,001***
	(0,003)	(0,004)	(0,001)
Constant	0,621	48,633***	0,099
	(3,525)	(5,142)	(0,734)
R square	0,061	0,676	0,171
Adjusted R square	-0,003	0,626	0,015
F	0,950	13,475	1,093

In this table, the second column shows the regression for the dependent variable Change in Equity, the third column shows the dependent variable Change in Revenue and the fourth column shows the dependent variable Change in Revenue with Outliers Removed. The independent variables are industry dummies. The control variables are Size and Leverage.

** denotes 10 % significance level, ** denotes 5 % significance level, *** denotes 1% significance level*

Size = The natural logarithm total opening assets 2018

Leverage = Total opening debt/Total opening assets 2018

6.6 Modified retrospective method or full retrospective method

Table 8 shows the descriptive statistics for the choice of method for each sector and country. In Germany 80% of the firms chose the *modified retrospective method*, whereas in France, Italy the U.K., the corresponding numbers are 38%, 60% and 64% respectively. Sweden is the only country where more firms chose the *full retrospective method* instead, illustrated by a percentage of 36 %.

Table 8 – Choice of Method for Country and Sector

	France			Germany			Italy			Sweden			U.K.			Total		
Industry	*M*	*F*	*ND*	*M*	*F*	*ND*	*M*	*F*	*ND*	*M*	*F*	*ND*	*M*	*F*	*ND*	*M*	*F*	*ND*
Accommodation and Food Services	0%	2%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	2%	2%	0%	0%	1%	0%
Adm. and Support and Waste Mgmt. and Remediation Serv.	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	2%	4%	2%	0%	0%	0%	1%	1%
Arts, Entertainment, and Recreation	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	1%	0%	0%
Construction	2%	4%	0%	2%	0%	0%	0%	0%	0%	0%	4%	2%	0%	4%	0%	1%	2%	0%
Educational Services	0%	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Health Care and Social Assistance	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Information	2%	4%	0%	10%	4%	0%	2%	2%	4%	2%	4%	4%	6%	6%	0%	4%	4%	2%
Manufacturing	16%	22%	12%	38%	14%	0%	32%	14%	6%	14%	20%	24%	26%	8%	2%	25%	16%	9%
Mining, Quarrying, and Oil and Gas Extraction	4%	0%	0%	2%	0%	0%	2%	0%	0%	2%	2%	0%	14%	2%	0%	5%	1%	0%
Professional, Scientific and Technical Services	6%	8%	2%	2%	0%	0%	0%	2%	0%	0%	2%	2%	4%	2%	0%	2%	3%	1%
Retail trade	4%	0%	0%	4%	0%	2%	0%	2%	0%	0%	2%	2%	4%	6%	0%	2%	2%	1%
Transportation and warehousing	2%	0%	0%	6%	0%	0%	6%	2%	2%	0%	0%	0%	0%	2%	0%	3%	1%	0%
Utilities	0%	4%	2%	8%	0%	0%	16%	0%	0%	0%	0%	0%	0%	2%	0%	5%	1%	0%
Wholesale Trade	2%	0%	0%	2%	0%	0%	2%	0%	2%	0%	0%	2%	4%	0%	0%	2%	0%	1%
No Sector	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	2%	0%	0%	0%	1%	0%	0%
Total sample	*38%*	*46%*	*16%*	*80%*	*18%*	*2%*	*60%*	*22%*	*18%*	*22%*	*36%*	*42%*	*64%*	*34%*	*2%*	*53%*	*31%*	*16%*

Table 8 shows the choice of method for each country and each sector. M = Modified Retrospective Method, F = Full Retrospective Method, ND = Not Disclosed.

6.7 Logit regression - Country impact on choice of method

A logit regression investigating the country impact of choice of method is shown in *Table 9*. The independent variables in this regression are the *Country dummy variables*. The logit regression is performed in order to test H6a. When performing the regression analysis *Sweden* is not stated in the table below as a separate variable since it is used as the baseline. Both the coefficients and the odds ratios are displayed for each variable. Among the independent variables *Germany* is significant at 1% significance level whereas *Italy* and *U.K.* are significant at a 5% significance level. All of the regressions have an odds ratio below 1, indicating that everything else equal a firm in Germany, Italy and U.K. are less likely to use the *full retrospective method* than a Swedish firm. This supports H6a that the choice of method is affected by the firm's country of origin.

Table 9 - Logit Regression on Country Impact on Method

Variables	**B**	**Odds ratio**
France	-0,512	0,599
	(0,544)	
Germany	-2,142***	0,117
	(0,569)	
Italy	-1,585**	0,205
	(0,544)	
U.K.	-1,277**	0,279
	(0,520)	
Size	0,131	1,14
	(0,126)	
Leverage	0,002**	1,003
	(0,001)	
Constant	-1,109	0,33
	(1,093)	
Included in analysis	208	
Missing observations	42	
Total	250	
Correctly classified	72%	

Table 9 shows the logit regression performed with the independent variables being the country dummy variables. For each variable, the coefficient is shown and in parenthesis the standard error is shown. Odds ratios are exhibited for all variables
Size = the natural logarithm of the closing value of total assets 2017
Leverage = closing value of total debt 2017/closing value of total equity 2017

6.8 Logit regression - Sector impact on choice of method

Table 10 shows a logit regression investigating the sector impact on choice of method. The independent variables in this regression are the *Sector dummy variables*. When performing the regression analysis *Accommodation and Food Services* is not stated in the table below as a separate variable since it is used as the baseline. The three variables with odds ratios close to zero all had significantly large standard errors which puts a constraint on the conclusions that can be drawn. Although these three variables show statistical significance, the high standard errors combined with the other variables not showing any significance, h6b is not supported.

Table 10 - Logit Regression on Sector Impact on Method

Variables	B	Odds ratio
Admin, Support, Waste Mgmt. and Remediation Services	0,928	2,530
Arts, Entertainment, and Recreation	-20,545	0,000
Construction	1,223	3,398
Health Care and Social Assistance	-21,114	0,000
Information	0,229	1,258
Mining, Quarrying, and Oil and Gas Extraction	-2,348	0,096
Professional, Scientific and	0,560	1,751
Retail Trade	0,091	1,095
Transportation and Warehousing	-0,994	0,370
Utilities	-1,637	0,195
Wholesale Trade	-20,788	0,000
Manufacturing	-0,283	0,754
Size	0,223	1,25
Leverage	0,002	1,002
Constant	-2,679	0,069
Included in analysis	208	
Missing cases	42	
Total	250	
Correctly classified	67,80%	

Table 10 shows the logit regression performed with the independent variables being the sector dummy variables. For each variable, the coefficient is shown and in parenthesis the standard error is shown. Odds ratios are exhibited for all variables.
Size = the natural logarithm of the closing value of total assets 2017
Leverage = closing value of total debt 2017/closing value of total equity 2017

6.9 Segment reporting

Table 11 shows the number of firms that added a certain amount of new revenue dimension for each country as well as for the total sample. Segments include sales segments, geographical segments. Sweden, followed by the U.K. are the countries where most firms have added at least one new segment. The country that has experienced the smallest increase in number of new dimension is France.

Table 11 – Segment Reporting for Country

Number of new dimensions	The U.K.	Italy	Germany	France	Sweden	Total
0	27	37	29	36	25	154
1	15	9	15	10	18	67
2	8	3	4	4	6	25
3	0	1	2	0	0	3
4	0	0	0	0	1	1

Table 11 reports the number of new dimensions that each country has reported after the adoption of IFRS 15 in comparison to previous financial reports prepared in accordance to pre IFRS 15 standards.

7. DISCUSSION

This section discusses the findings of the results in relation to the initially stated hypotheses as well as to the research question of this study. When doing so, the findings will be discussed in relation to previous research.

7.1 The effect on equity and revenue from IFRS 15 adoption

The test conducted in order to investigate H1a concludes that IFRS 15 has an effect on the total equity of the observed firms. Even though the mean effect on IC of equity for all the observations is only -0,2 % it is significantly different from 0 at a 1% significance level. One reason for the low mean effect on equity is the large number of firms with no effect. Another explanation is provided by the fact that positive and negative effects have a smoothing influence to a certain extent. The frequency table also provides support for the negative trend on the effect on equity. There, one can see that 83 firms have a negative impact whereas only 23 firms have a positive impact. This further suggests that the implementation of IFRS 15 has, to greater extent, a negative rather than a positive impact on firms' equity.

From the t-tests it is concluded that H1b is supported and that the effect on revenue from the adoption of IFRS 15 has generally been negative. The mean for the entire sample is -0,39% and is statistically significant from 0. This would imply that firms are more conservative when reporting revenue under IFRS 15 than under previous standards.

In the equity frequency table one observation stands out from the rest. Rolls-Royce, a British multinational engineering company originally reported total equity of 6,170 £ in December 2017, after the implementation of IFRS 15 the restated equity was 1,196£. The decrease was thus equal to 4,974£ or an 80,4% decrease. One of the reasons for this large decline is that Rolls-Royce typically sells aircraft engines at a loss and later turns this into a profit by servicing them. These services contracts generally have contractual terms covering several years. Before IFRS 15, Rolls-Royce recognized some of the future revenue from these contracts early. Under IFRS 15 the revenue from these contracts are instead recognized when the actual service takes place. So, for Rolls-Royce, the adoption of IFRS 15 had a significant impact on total equity.

From previous literature, one can expect the impact from the adoption of IFRS 15 to be different depending on cultural factors (Erkens 2016 and Gray 1988). Therefore, tests are also conducted for each country where the lowest mean is found in Italy and the highest mean is

found in the U.K. However, none of these are significantly different from 0 at a 10% significance level. In contrast, both Sweden and Germany show negative means that are statistically significant from 0 on a 10% significance level. France also exhibits a negative mean that is different from 0 with a 1% significance level. Therefore, it can be concluded that the general trend of the impact on equity from the implementation of IFRS 15 seems to be negative. Potentially, this could mean that IFRS 15 is more conservative or is applied in a more conservative manner than the previous standards since the general effect for the accumulated data as well as for the majority of countries have been negative. Another explanation could be that firms do not have as much discretion when applying IFRS 15 as when applying previous standards. This would indicate that previous standards allowed for more optimistic interpretations and that these possibilities are now reduced, which is illustrated by the negative effect on equity.

The concept of conservatism is especially interesting when interpreting the results presented in this study. The level of conservatism can be linked to the financing structure of companies, which is however not necessarily limited to each company, but can also be rooted in the behavior of entire countries (Muller et al., 1991). Many studies have classified France and Germany as countries with strong conservative approaches, while the U.K. exhibits less conservatism (e.g. Nobes, 1984; Choi and Mueller, 1984; Arpan and Radebaugh, 1985). This reasoning contradicts the results presented in this study. From the frequency table, it is made clear that in the U.K. only 10 firms experienced a negative effect on equity whereas the corresponding numbers for Germany and France are 20 and 21 respectively. In addition to this, the mean effect on equity for both Germany and France are lower than that of the U.K. This is surprising as one could expect that the effect from adopting IFRS 15 would be more positive for a country coming from conservative accounting traditions rather than for one that previously has had optimistic accounting traditions. A potential reason for this discrepancy could be that firms in Germany and France apply IFRS 15 in a conservative manner, whereas firms in the U.K. apply the standard in a more optimistic way. This would go against the objectives of IFRS, to reduce the discrepancy and increase comparability. Another explanation could be that in France and Germany, more firms adhere to the sector *Manufacturing* (26 for each country) than in the U.K. (18 firms). This could play a significant role since *Manufacturing* is the sector that exhibits the most negative mean value out of all the sectors tested.

7.2 Different effects on equity for contrasting cultures

In order to add depth to the analysis and shed light on what gives rise to the effects, H2abc functioned as a way of testing different cultures against one another. The study finds that the mean effect on total equity from adopting IFRS 15 is different for *Anglo* compared to *More Developed Latin*, and for *Nordic* compared to *More Developed Latin*, which supports H2a and H2c. The findings resonate well with Erken's (2016) findings in which the initial implementation of IFRS 7 was affected by cultural variables. This also highlights the issue brought up by previous research that question to what degree accounting harmonization can be achieved by implementing a single set of accounting standards (Ball et al. 2000; Ball et al. 2003; Holthausen 2003). However, one should note that when comparing *Anglo* with *Germanic* the test did not yield a statistically significant difference between the population means and thus H2b is not supported. This could potentially be explained by the fact that both cultures are closer to each other on Gray's (1988) dimensions in the *Authority and Enforcement* diagram as well as on the *optimism vs. conservatism* axis in the *Measurement and Disclosure* diagram than the *Anglo* and *More Developed Latin* cultures. This may indicate a similar approach in the implementation of IFRS 15 from both cultures, which also results in similar effects.

The results open up for interesting analyses in terms of why the effect on equity from adopting IFRS 15 is different between certain cultures. One possible explanation could be that accountants and firms in different cultures interpret and apply the new standard in different ways. This explanation is further supported by this study since the countries belonging to the *More Developed Latin* culture, which is the most conservative accounting culture according to Gray (1988), have the most negative mean effects on equity. Concurrently, *Anglo* which is the most optimistic accounting culture, has the only positive mean effect on equity. This implies that firms in *More Developed Latin* are more conservative in their initial application of IFRS 15 than *Anglo* firms. The notion of persisting accounting traditions supports previous literature suggesting that the implementation of a standard can be affected by accounting traditions that existed before the initial implementation of IFRS (Erkens, 2016). If this is the case, IFRS 15 allows for a subjective interpretation of the standard since the conservative cultures are allowed to execute even more conservatism, whereas the optimistic cultures are allowed to execute even more optimism in their financial reporting. This goes against IASBs objective to improve comparability of financial accounting across industries, jurisdictions and capital markets (EY, 2018).

7.3 No differing effects on revenue for contrasting cultures

Since revenue is one of the most important measures used by investors, it is interesting to understand if the mean effect on reported revenue from adopting IFRS 15 is different in contrasting cultures in accordance to Gray (1988). The tests performed in this thesis do not give any conclusive evidence for this and thus neither H3a, H3b nor H3c are supported. One potential reason for the low significance of these tests could be that the samples are relatively small. One of the reason the samples are small is due to the fact that when adopting IFRS 15 only a minority of firms chose the *full retrospective method* in which previous years financial statements are restated. Furthermore, out of the firms that chose the *modified retrospective method* only a handful provided guidance regarding what effect IFRS 15 had on revenue.

7.4 Sector and culture variables affecting the effect on equity

Before the implementation of IFRS 15 there were speculations that the effect from adopting the new standard would likely differ depending on sector. FASB even stated that *"Industries that are likely to experience the most changes include telecommunications, aerospace, construction, asset management, real estate, and software."*. Thus, this thesis formulated H4a and H4b in order to investigate whether the effect on equity from adopting IFRS 15 was affected by country and sector. The tests performed in this study show that none of the independent variables have a statistically significant correlation with effect on equity. Therefore, neither H4a nor H4b are supported. One possible reason that none of the sector dummy variables or the country dummy variables are significant, is that the sample contains several outliers as is evident from the frequency tables. This could also explain the low R-square of the tests. It should also be acknowledged that the distribution and magnitude of the effects follow similar patterns in all countries. However, one of the control variables, *Leverage*, shows a negative correlation with the *effect on equity* that is significant on a 1% level. This indicates that, all else equal, a higher leveraged firm will have a greater negative effect on equity from the implementation of IFRS 15. This aligns with the notion put forth by Mueller et al. (1991), that in cases of high degree of debt financing, more conservatism is present. This is because debt holders require a high degree of certainty, and are aiming at limiting risk when making investment decisions. Also, previous research suggests that firm-level factors impacted the adoption of IFRS 7 (Erkens, 2016).

7.5 Sector and culture variables affecting the effect on revenue

This thesis also formulated H5a and H5b in order to investigate if the effect on revenue from adopting IFRS 15 was affected by country and sector. It is concluded that H5a is not supported. When testing H5b, all sector dummy variables and one control variable *Leverage* are shown to have a negative correlation with the effect on revenue, and they are all statistically significant. This indicates that the effect on revenue is affected by sector. However, the total sample contains one extreme outlier that impacts the results.

The hotel chain Accor SA saw their reported revenue for the first half of 2017 increase by 47.8%. The increase is a result of a new stance in whether the group acts as a principal or agent under their management contracts. Accor's management contracts sometimes require them to incur hotel operating costs on behalf of the property owners. These costs are generally re-invoiced to the property owners without any markup. Under previous standards the group considered themselves to act as agents because they were not exposed to the significant risks and rewards that are associated with the rendering of the service. However, under IFRS 15, the group consider themselves as the principal because they control the services, which are not distinct from the overall performance delivered.

When removing outliers from the sample none of the independent nor the control variables exhibit a statistically significant correlation with the dependent variable. Because of this, it is hard to make any far drawn conclusions about if the effect on revenue is affected by sector. Since none of the variables has a statistically significant correlation when outliers are removed, the results could be seen to indicate that no sector trends can be identified.

7.6 Cultural and sector variables affecting the choice of method and disclosure

The notion of accounting harmonization and the objective of IFRS 15 to increase comparability highlights the importance of investigating whether the choice of method is influenced by culture or sector. The results do not show that sector is significant in explaining the choice of method and therefore H6b is not supported. However, the results conclude that culture does have an effect on the choice of method. The independent variables *Germany*, *The U.K.*, and *Italy* are all statistically significant on a 5% level and all have an odds ratio below 1. This indicates that firms from these countries are less likely to opt for the *full retrospective method* with *Sweden* as the baseline. *Germany* has both the lowest odds ratio and is significant on a 1%

level. This would indicate that firms in Germany are more likely to opt for the *modified retrospective method*, compared to firms in the other countries included in this study. This is further supported by looking at the distribution of firms' choices, where Germany has the highest number of firms applying the *modified retrospective method*. Since Germany is located almost on the edge of the secrecy axis in the *Measurement and Disclosure* diagram proposed by Gray (1988), it is expected that they would prefer the *modified retrospective method* over the *full retrospective method* since it requires less disclosure. However, the other countries included in this study are located further away from the *Secrecy* and closer to the *Transparency* end of the spectrum and are therefore expected to apply the *full retrospective method* to a greater extent. Thus, the finding that the U.K. is less likely to opt for the *full retrospective method*, rather than Swedish firms, is surprising since *Anglo* is closer to the *Transparency* end of the spectrum than *Nordic*.

The concept of increased comparability from the adoption of IFRS 15 can be analyzed in the context of the number of new revenue dimensions disclosed. From *Table 11* one can clearly see that Sweden and the U.K. are the countries that have experienced the greatest increase in number of new revenue dimensions. On the other end of the spectrum, France and Germany are the countries that have experienced the least increase in number of revenue dimensions. This finding resonates well with previous literature, having classified *Anglo* and *Nordic* as cultures with a tradition of transparency and *More Developed Latin* and *Germanic* as cultures with a tradition of secrecy (Gray, 1988). Therefore, this study indicates that the U.K. and Sweden are not as unaccustomed to the increased disclosure requirement as France and Germany.

8. CONCLUSION

This thesis is conducted in order to investigate the effects of IFRS 15 on equity, revenue and disclosure as well as to explore if there are any cultural or sector impacts. In order to do so, 250 public firms from five different countries across Europe are studied and analyzed using financial reports from 2017 and 2018. Financial data published in 2017 is compared to the restated numbers of 2017 that are prepared in accordance with IFRS 15. The index of comparability developed by Gray (1980) is used to analyze the effect on equity and revenue, which reveal that the implementation of IFRS 15 has to a greater extent had a negative, rather than a positive, impact on firms' equity and revenue. This finding contributes to the field of accounting research on public firms and international accounting harmonization and should be of interest to practitioners and standard setters alike since it could indicate that the measurement of equity is more conservative under IFRS 15 than under previous standards.

Even though the results from multiple regression analysis do not provide evidence that cultural variables are significant in explaining the effect on equity or revenue, differences in the form of cultural patterns are identified in the effect on equity. This finding shows that previous cultural differences in accordance with Gray (1988), are visible in the implementation of IFRS 15 in the form of more and less conservatism. This supports previous research stating that even after the implementation of IFRS, accounting traditions that existed before the initial implementation are still present (Fifield et al., 2011 and Aisbitt 2006)

This study finds that sectors are not significant in explaining the effect on equity, which is interesting as industry experts as well as both IASB and FASB had initially predicted it would be significant (FASB, 2017; IFRS, 2014). However, the role of sectors in explaining the effect on revenue is less clear cut. The regression with the full data set shows that sector variables are significant in explaining the effect on revenue. However, this is mainly driven by one outlier. When removing outliers, the results suggest that there are no sector trends. As such, it can be concluded that the results do not give any clear evidence that the effect on equity nor on revenue are affected by sector variables.

Another finding of this study is that the choice of method is affected by cultural variables. Since the *full retrospective method* requires a higher degree of disclosure than the *modified*

retrospective method, this finding adds to the research field of cultural differences in disclosure and transparency. Furthermore, the results show that firms in Germany are least likely to opt for the *full retrospective method*, whereas firms in Sweden and the U.K. are most likely to opt for the *full retrospective method*. This goes in line with previous literature that has classified Germany as a country with cultural accounting traditions of secrecy and the U.K. as a country with cultural accounting traditions of transparency (Gray 1988). Additional support for this finding is provided as the U.K. and Sweden are also the two countries in which firms are most likely to add new dimensions in their revenue segment disclosure. This thesis therefore adds to the accounting literature with the finding that the disclosure behavior when transitioning to IFRS 15 follows accounting traditions as outlined by Gray (1988).

This study concludes that the implementation of IFRS 15 has had an effect on equity and revenue. Furthermore, it supports Fifield et al. (2011) and Aisbitt (2006) when confirming that cultural accounting traditions that persisted even before the initial implementation of IFRS are still observed. Lastly, the findings of this study indicate that a completely comparable financial reporting standard has not yet been reached and that birds of a feather still flock together, even after years of harmonization efforts.

9. LIMITATIONS AND FUTURE RESEARCH

The study's reliability can be considered high in the sense that there is very little subjectivity in most of the data collected and used, in terms of reported total equity, total assets, total debt, revenue, effect on equity and market capitalization. The collection of new dimensions in segment reporting sometimes required some subjective judgement that could potentially have impacted the reliability of this study. However, this data is not a building block for many or any far drawn conclusions and therefore it should not impact the reliability of this study to any large extent.

The validity of the study is related to if it is possible to draw any conclusions from the generated results. The analyses conducted in this thesis are largely built on research and frameworks that were developed a long time ago. Therefore, caution should be used when making any conclusions, even though there is more recent research in support of former mentioned research and frameworks.

One limitation of the study is that only the first financial reports since introducing IFRS 15 are studied. It is highly possible that firms will get a better understanding of the new standard after they have adopted it for the first time. Since the first financial reports were either the quarterly report or the interim report, the time effect has not been captured since the time frames differ in some cases. Also, the effects might be different in different periods and the findings of this study might therefore differ based on periods. An interesting aspect would be to look at how the periods of 2018 differs and compare if there are any trends in terms of reported revenue and equity. Therefore, it is of the utmost interest to study the effects of adopting IFRS 15 when firms release their annual reports for 2018.

Additionally, it is hard to make any far drawn conclusions due to the limited number of observations in this study. Only 50 firms have been collected from each country and can therefore hardly be seen as representative of all the public firms in these countries. Because countries have been used as a proxy for cultures one should also be careful when making conclusions about the cultural impacts. This would also be an interesting area for future research in which one could include more countries for each culture and even compare these countries against one another to see if there are any country specific trends in the same cultural area.

The size of the firms collected constitute a reason for precaution when making conclusions. All firms in this study are among the 50 largest firms in each country based on market capitalization. This should be kept in mind as it may have affected for example the likelihood of choosing the *full retrospective method* as this requires more work and would most probably be associated with greater costs than the *modified retrospective method*. This is another potential area for future research as it would be very interesting to investigate if there are any differences between large and small firms in how they adopt IFRS 15 and if it affects their choice of method.

Lastly, one should be aware that most of the data has been hand collected from firms' financial reports. Since there has not been a standardized way for firms to communicate the impact of IFRS 15, it has differed amongst firms. This can ultimately have impacted the reliability of this study as it is plausible that information regarding the effects have been missed or misinterpreted. Also, since the data has been hand-collected the risk of human errors should not be neglected

This thesis has investigated the effects of adopting IFRS and if there are any sector or cultural trends. The results highlight the importance of future research in the area of accounting harmonization and standard adoption.

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APPENDIX

Appendix A - NAICS

Industry Title	Code
Agriculture, Forestry, Fishing and Hunting	11
Mining, Quarrying, and Oil and Gas Extraction	21
Utilities	22
Construction	23
Manufacturing	31-33
Wholesale Trade	42
Retail Trade	44-45
Transportation and Warehousing	48-49
Information	51
Finance and Insurance	52
Real Estate Rental and Leasing	53
Professional, Scientific, and Technical Services	54
Management of Companies and Enterprises	55
Administrative and Support and Waste Management and Remediation Services	56
Educational Services	61
Health Care and Social Assistance	62
Arts, Entertainment, and Recreation	71
Accommodation and Food Services	72
Other Services (except Public Administration)	81
Public Administration	92

Appendix B - Reasons for Exclusion

Reason for exclusion	***France***	***Germany***	***Italy***	***Sweden***	***U.K.***	***Total***
Broken Fiscal Year	3	6	2	2	12	25
Double-listing		1		1	0	2
Industry	13	8	25	14	22	82
US GAAP				2	1	3
Total sample	**16**	**15**	**27**	**19**	**35**	**112**

Appendix C - Country, Sector and Subsector

Country, Sector and Subsector	N	%	Market Capitalization, average (MEUR)	Market Capitalization, median (MEUR)
Country				
France	50	20%	31 551	18 699
Germany	50	20%	45 836	11 846
Italy	50	20%	8 154	3 982
Sweden	50	20%	8 190	4 838
U.K.	50	20%	37 620	12 608
Total Sample	*250*	*100%*	*26 270*	*10 253*
Sector				
Accommodation and Food Services	4	1,6%	10 029	12 367
Admin. and Support and Waste Mgmt. and Remediation Services	5	2,0%	9 008	7 878
Arts, Entertainment, and Recreation	2	0,8%	6 111	6 111
Construction	9	3,6%	12 482	9 249
Educational Services	1	0,4%	1 527	1 527
Health Care and Social Assistance	2	0,8%	97 430	97 430
Information	25	10,0%	19 252	9 134
Manufacturing	124	49,6%	29 950	10 968
Mining, Quarrying, and Oil and Gas Extraction	14	5,6%	59 287	21 564
Professional, Scientific and Technical Services	15	6,0%	10 767	9 239
Retail trade	13	5,2%	10 767	9 239
Transportation and warehousing	10	4,0%	15 470	10 215
Utilities	16	6,4%	27 552	13 637
Wholesale Trade	7	2,8%	25 238	10 795
No sector	3	1,2%	8 467	9 432
Total sample	*250*	*100,0%*	*26 270*	*10 253*
Subsector for Manufacturing				
Apparel Manufacturing	5	4,0%	34 894	9 590
Beverage and Tobacco Product Manufacturing	4	3,2%	37 082	11 234
Chemical Manufacturing	29	23,4%	49 529	12 144
Computer and Electronic Product Manufacturing	10	8,1%	11 179	9 895
Electrical Equipment, Appliance, and Component Manufacturing	2	1,6%	21 256	21 256
Fabricated Metal Product Manufacturing	2	1,6%	7 849	7 849
Food Manufacturing	3	2,4%	17 808	5 248
Leather and Allied Product Manufacturing	5	4,0%	33 536	8 273
Machinery Manufacturing	13	10,5%	11 149	7 636
Miscellaneous Manufacturing	5	4,0%	15 289	10 417
Nonferrous Metal (except Aluminum) Smelting and Refining	1	0,8%	8 738	8 738
Nonmetallic Mineral Product Manufacturing	2	1,6%	50 226	50 226
Paper Manufacturing	8	6,5%	9 856	10 079
Petroleum and Coral Products Manufacturing	3	2,4%	60 624	7 718
Plastics and Rubber Products Manufacturing	5	4,0%	45 272	18 578
Primary Metal Manufacturing	6	4,8%	11 345	8 677
Transportation Equipment Manufacturing	21	16,9%	32 277	21 384
Total Sample	*124*	*100,0%*	*29 950*	*10 968*

Appendix D – Cross Disclosure for Sectors and Countries

	France	*Germany*	*Italy*	*Sweden*	*U.K.*	*Total*
Accommodation and Food Services	1		1		2	4
Administrative and Support and Waste Management and Remediation Services	1			3	1	5
Arts, Entertainment, and Recreation		1			1	2
Construction	3	1		3	2	9
Educational Services			1			1
Health Care and Social Assistance		2				2
Information	3	7	4	5	6	25
Manufacturing	25	26	26	29	18	124
Mining, Quarrying, and Oil and Gas Extraction	2	1	1	2	8	14
Professional, Scientific and Technical Services	8	1	1	2	3	15
Retail Trade	2	3	1	2	5	13
Transportation and Warehousing	1	3	5		1	10
Utilities	3	4	8		1	16
Wholesale Trade	1	1	2	1	2	7
No sector				3		3
Total sample	50	50	50	50	50	250

* Sector according to The North American Industry Classification System (NAICS)