ERASMUS UNIVERSITY ROTTERDAM

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Master's Thesis

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Audit style of a big 4 audit firm and financial statement comparability

An assessment as to whether a more principled-based accounting standard approach would influence the effect of the big 4 audit firm on financial statement comparability as compared to rules-based accounting standards.

Abstract

Although standard setters aim to make financial statements more comparable with uniform accounting standards, prior literature shows that uniform accounting standards do not automatically lead to comparable financial statements. This study examines as to whether an audit firm influences the financial statement comparability in a UK setting. Due to in-house working rules of a specific audit firm, the audit firm influences the comparability of financial statements (Francis, Pinnuck and Watanabe, 2014). Where principles-based accounting standards require more professional judgment, the prediction is that an audit firm has more influence on the financial statement comparability in the UK compared to in the US. My set of results show that the big 4 audit firm has more influence on financial statement comparability in a UK (principles-based) setting compared to a US (rules-based) setting.

Keywords: audit style; financial statement comparability; principles-based; rules-based; big 4.

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1. Introduction

1.1 Introduction of the topic

This thesis will examine the relation between 'audit style' and financial statement comparability of firms in the United Kingdom (UK). The 'audit style' is the set of internal working rules the audit firm uses. Previous research has examined the impact of in-house working rules of big 4[1] audit firms on financial statement comparability with US firms (Francis, Pinnuck and Watanabe, 2014). Francis et al. (2014) found differences in the interpretation of the accounting standards due to the internal working rules. They found that firms in the same industry with the same big 4 audit firm have a higher financial statement comparability, based on accrual and earnings structure, compared to companies with a different big 4 audit firm.

With the current shift towards uniform accounting standards and the intended convergence between International Financial Reporting Standards (IFRS) and United States Generally Accepted Accounting Principles (US GAAP), the question arises: what is the role of the audit firm in the comparability of financial statements. Although the goal of the, in 2002 signed, Norwalk Agreement[2] was to achieve full convergence, this no longer appears realistic under the current sentiment. In a speech given by the chief accountant of the SEC in December 2014, several concerns were addressed about IFRS adoption that include "legal impediments, practical challenges and an impact on comparability" (Schnurr, 2014). This thesis aims to examine whether the in-house working rules of an audit firm have a stronger influence on the financial statement comparability in a UK setting compared to in a US setting. According to Kothari, Ramanna and Skinner (2010, p. 276), principles-based standards have a negative effect on the comparability of standards and an ''increased potential for manipulation''. Kothari et al. (2010) assume that it is not cost effective to work with principles on a daily basis, therefore the application of standards by accountants and auditors will be done with working rules.

[1] Big 4 audit firms refer to the largest four accounting and audit firms: Deloitte, EY, KPMG & PricewaterhouseCoopers

[2] The Norwalk Agreement (2002) is a memorandum of understanding signed by the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB). In this memorandum of understanding both standard boards pledge to use their best efforts to make the accounting standards more comparable.

1.2 Research question

Whereas Francis et al. (2014) found that the audit style has an influence on the comparability of the financial statements in a setting of US GAAP firms, this thesis will examine whether the in-house working rules have a greater effect on the financial statement comparability with the principles-based standards in the UK. Where the preparation of financial statements under rules-based accounting requires a list of detailed rules that must be followed, the principles-based standards are based on the professional judgment in the effectuation of the standards. The UK GAAP are regarded as very similar to IFRS (Bae, Tan and Welker, 2008). Assuming that the IFRS is a more principles-based standards than the GAAP, the comparison will be made between the UK and the US. This will be done by answering the following research question:

Does the 'audit style' of a Big 4 audit firm have a stronger effect on the financial statements comparability when the accounting standards are more principles-based instead of rules-based?

The answer to this research question is interesting with respect to the current shift towards more comparable standards and financial reports. Considering that the audit firm has an impact on the financial statement comparability, the question arises whether these in-house working rules of the auditor have a greater impact when the standards are principles-based. Where Francis et al. (2014) conduct their research in a US setting, the goal here is to examine whether these in-house working rules have a greater effect in a UK setting, which in comparison to the US, has a more principles-based accounting standard. The convergence plan of the IASB and FASB aims to develop ''high quality, common accounting standards for use in the world's capital markets'' (IASB, 2008, p. 5). Where full convergence between IFRS and US GAAP might not currently be feasible, the importance of global comparable financial information is both recognized by the International Accounting Standards Board (IASB), Financial Accounting Standards Board (FASB) and the Securities and Exchange Commission (SEC) (Schnurr, 2014). Prior research has also investigated the increase in comparability under IFRS (Yip and Young, 2012; Horton, Serafeim and Serafeim, 2013). The implementation of IFRS still requires judgment in the selection and application of IFRS accounting treatment (EY, 2006). According to a report of EY (2006) these treatments have a negative effect on the consistency and comparability of financial statements due to the judgment of accounting policies.

1.3 Relevance

The subject of this thesis is relevant with the current negative sentiment towards and lack of trust in the audit profession. This study aims to provide an answer as to whether the audit firm as an economic agent has an impact on the financial statements. An economic agent could be defined as a person, company or organization that has an effect on the economy by producing, buying or selling. It is assumed in this thesis that the audit firm has a role in the outcome of the financial statements. Possible reasons are unique audit approaches, interpretations of accounting and audit standards and consistency in client-error detection. Moreover, this thesis examines whether the influence of the audit firm on the financial statement comparability increases when the accounting standards are more principles-based. Whether the in-house working rules of an auditor affect the financial statement comparability, might be useful for investors, firms, audit firms and regulators. With the aim of standard setters to make financial reports more comparable, this research gives an insight on the impact of the 'audit style' for the audit quality and the impact of the working-rules of audit firms when the accounting standards are principles-based. Furthermore this thesis provides insight into the role of economic institutions – auditors – in the comparability of financial statements. The existing literature of financial statement comparability is mainly focused on the comparability of accounting standards and the impact of these standards on the comparability of financial statements. Furthermore, the goal is to evaluate the role of the auditor in the production of the financial statements. It is important to recognize whether the role of the auditor on financial statement comparability increases when the accounting standards are more principles-based. The outcome is relevant for standard setters.

The findings of my research show the impact of principles-based or rules-based accounting standards on the differences in financial statement comparability between firms with the same audit firm. In summary, this assumes that the audit firm has more influence on financial statement comparability when the accounting standards are more principles-based. Where prior literature mainly examined the impact of accounting standards on the comparability of financial statements, this research shows that big 4 audit firms in the UK have an impact on the comparability of financial statements. This impact of a big 4 audit firm on financial statement comparability is larger in the UK compared to a US setting.

1.4 Structure

The remainder of this paper is structured as follows: the second chapter contains a literature study that examines prior literature of rules-based versus principles-based standards, financial statement

comparability and the characteristics of the auditor that influence the accounting outcome. The third chapter provides an overview of audit regulation in the UK in relation to the US. The fourth chapter contains the development of the hypotheses. After the hypotheses development, the fifth chapter shows the research design and the measurement method of financial statement comparability. The last chapter shows the outcome of the research and contains an analysis of this outcome.

2. Literature Review

2.1 Introduction

The literature review will be based on four streams of literature. Firstly, the literature that provides an insight in the rules-based and principles-based standards. The research question of this paper is based on a difference in audit style when the standards are more principles-based. Therefore, the differences between principles-based and rules-based standards are relevant. Secondly, the literature related to the financial statement comparability will be identified and evaluated. This part shows prior research which focuses specifically on the impact of uniform accounting standards on financial statement comparability. The last part will examine the literature that relates the auditor characteristics to performance and financial statement measures. This mainly examines prior literature that shows the effects of the audit firm on the financial statements. This is relevant considering the assumption that firm-specific characteristics of the audit firm have an impact on the financial statement.

2.2 Rules-based versus principles-based standards

After some accounting scandals the FASB came with the Sarbanes-Oxley Act (SOx) in 2002. According to the FASB there was an impression that accounting standards were difficult, complex and costly to apply (MacDonald, 2002) during the period of the implementation of SOx. In this research the assumption is made that the 'audit style' has more impact on the comparability of financial statements when the accounting standards are principles-based. Therefore this chapter examines prior research that discusses the basis of the accounting standards.

2.2.1 Standards and the impact on comparability

According to Agoglia, Duopnik and Tsakumis (2011) US GAAP is often described and criticized for being a rules-based accounting standard. This can be contrasted to the IFRS standards, which are described as principles-based. According to Nelson (2003) an important difference is that principles-based standards have expressions that are less precise and expressions that are less precise could lead to different interpretations. These different interpretations result in a decrease in comparability of financial statements (Nelson, 2003). Whereas the rules-based accounting standards rely on detailed guidance, i.e., how to account, the principles-based accounting standards rely on the professional judgment of the auditor (Scott, 2014). Nobes (2005) assumes that US GAAP are based on rules, because the underlying

principle is poor or because there is a lack of principles. Nobes (2005) research is in line with the research of Nelson (2003), who concludes that rules-based standards lead to an increase in clarity and comparability. Although Nobes (2005) agrees with Nelson (2003) about the notion that more precise standards results in increased comparability, he argues that less rules could also lead to increased comparability. According to Nobes (2005) principles could be clearer, what leads to increased comparability and less rules. Van Beest and Knoops (2011) provide an overview of literature that examined the relation of principles-based/rules-based accounting standards and earnings management. The authors state that according to prior literature it is unclear whether principles-based accounting standards lead to an increase or decrease in earnings comparability.

Katherine Schipper (a member of the FASB during 2001-2006) published an article in 2003 about principles-based accounting standards after the publication of SOx. Schipper (2003) observed that the US GAAP as a rules-based standard was undesirable, and a shift towards more principles-based standards was demanded by users of financial statements. Schipper (2003) explains that, although US GAAP is perceived as a rules-based standard, it was originally based upon principles. Schipper (2003) elaborates on the impact of treatment exceptions (the accounting treatment for an exception in the standard) and scope exceptions (how to treat items that are excluded) on the rules. Schipper (2003) argues that the treatment and scope exceptions lead to more rules and therefore a rules-based accounting standard. On the other hand these scope and treatment exceptions are an explanation for the application of the standard. She argues that when financial statement comparability is desirable, it is necessary to limit the permissible treatments of events in the financial statements. Schipper (2003) argues that the reason the FASB needs to have rules-based reporting standards that are based on principles is to achieve comparability and consistency.

2.2.2 Aggressive reporting under rules-based standards

Agoglia et al. (2011) investigated whether CFOs are more likely to report aggressively when the standards are more principles-based or rules-based. Agoglia et al. (2011) found that more principles-based standards result in less aggressive reporting. The authors conducted the research with an experiment about a lease classification criterion. They found that managers have a higher likelihood to capitalize the lease when the lease classification criterion is less precise. According to Agoglia et al. (2011) the reason managers will report less aggressively is because principles-based accounting standards have the ability for managers to reflect the underlying economic reality. The results show the importance of principles-based standards and could be used as an argument for standard setters to

move toward more principles-based standards. In their experiment, the authors also found that a strong audit committee has an impact on the extent of aggressive reporting when the standards are rules-based.

2.2.3 Summary rules-based versus principles-based standards

Prior literature has examined the impact of principles-based or rules-based accounting standards, and whether principles-based or rules-based standards are desirable. Before attempting to answer this question, it is necessary to examine whether US GAAP or IFRS are rules-based or principles-based. In prior literature US GAAP is defined as a rules-based standard and IFRS as a more principles-based standard. Suggested in prior literature is that a rules-based accounting standard increases the comparability and clarity. Literature also shows that the rules-based accounting standard approach has merits and limitations. The rules-based accounting standards might be too complex and difficult to apply. Another view is that principles-based standards are more appropriate and have less aggressive reporting as a result. This view suggests that principles-based standards will eventually lead to more comparable financial statements. Mentioned conditions to achieve comparability are clear principles and necessary expertise to apply the principle.

2.3 Financial statement comparability

As it is the aim of the standards boards to make financial reports more comparable through a uniform set of accounting standards, it is pertinent to ask whether uniform standards will lead to higher comparability. In order to address the question it is necessary to consider the impact of IFRS on financial statement comparability. Furthermore it will be useful to examine prior literature that shows the effect of comparable financial reports on the capital markets. Additionally this section examines whether political-, legal- and country-factors have an impact on the financial statement comparability. Lastly, there will be an analysis on whether the local environment of a country has an influence on the comparability of financial statements.

In the International Accounting Standards Board (IASB) Framework and the Financial Accounting Standards Board (FASB) Concepts Statements, comparability is defined as a qualitative characteristic of financial information (IFRS, 2005). The definition of comparability given in the exposure draft of the conceptual framework for financial reporting is (IASB, 2015):

"Information about a reporting entity is more useful if it can be compared with similar information about other entities and with similar information about the same entity for another period or another date. Comparability enables users to identify and understand similarities in, and differences among, items".

According to this definition the assumption could be made that firms report similar accounting numbers in case of similar economic events. This is in line with the definition of Beuselinck, Joos and Van der Meulen (2007) where the definition is based on regulator views (Jenkins, 1999) and prior academic research (Land and Lang, 2002). They define comparability as:

"to account similarly for alike transaction and differently for dissimilar transaction" (Beuselinck et al., 2007, p. 3)

To achieve comparability, prior literature suggests that the accounting procedures must be consistent and uniform. Consistent procedures means that the use of accounting procedures is the same over time. Uniformity refers to the use of the same procedures by different firms in the same circumstances.

2.3.1 Effect of uniform accounting standards for investors

With the signing of the Norwalk Agreement the IASB and FASB "pledged to use their best effort to (a) make their existing financial reporting standards fully compatible as soon as is practicable and (b) to coordinate their future work programs to ensure that once achieved, compatibility is maintained". Events that increased the likelihood of IFRS adoption in the US have had a positive market reaction. This shows that investors expected to have benefits when IFRS reporting is in place (Armstrong, Barth, Jagolinzer and Riedl, 2010). In line with Armstrong et al. (2010), Joos and Leung (2013) investigated the effect of events that increase the likelihood of IFRS adoption for US firms. Consistent with research of Amstrong et al. (2010), Joos and Leung (2013) found a positive market reaction when the likelihood of IFRS adoption increases. Moreover, Joos and Leung (2013) show an increasing positive effect when the convergence benefits of the company are perceived higher and a smaller effect when the firm has a higher litigation risk. According to Joos and Leung (2013) convergence benefits are reduced costs for investors to compare financial reports. Whether or not the market reaction after an increasing likelihood of IFRS adoption is due to a greater financial statement comparability or audit quality is unclear (Armstrong et al., 2010).

One method to determine whether uniform standards lead to an increase in comparability is to determine whether there is a change in the use of insider information by investors and an increase in cross-border investments. Brochet, Jagolinzer and Riedl (2013) assume that if the financial statements are more comparable, there are less opportunities for insiders to benefit from inside information. With the adoption of IFRS the authors expect that there is more of, as well as higher quality public information and less private information. The reason is that the adoption of IFRS allows users of the financial statements to better deduce and compare financial information. Brochet et al. (2013) found that the ability for insiders to use inside information is reduced by the adoption of IFRS for companies from the UK. According to Brochet et al. (2013) this suggests that the adoption of IFRS improved financial statement comparability. Beneish, Miller and Yohn (2015) suggest that the mandatory adoption of a global standard such as IFRS increased the cross-border investment flows for debt and equity investors. Beneish et al. (2015, p. 24) found that the increase in foreign debt investments after adoption of IFRS is not associated with the quality of the government, a higher economic development and creditor rights prior to adoption. A rather different outcome is found for the equity investors. The equity investments after the adoption of IFRS are positively associated with the quality of the government, the economic development and the creditor rights prior to adoption.

According to Beneish et al. (2015) an important remark is that the increase in foreign investments after IFRS adoption is probably due to higher financial reporting quality and not because of an increase in financial statement comparability. The authors examined this alongside the origin of the increase in investments. When the increase in investments comes from other countries that adopted IFRS, then the benefit in investments is related to the adoption. When the increase in investments originates from non-adopting IFRS countries, then this is due to an increase in reporting quality (Beneish et al., 2015). Although this argument holds for the replacement of local GAAP for IFRS, both the US GAAP and IFRS are perceived to be high quality standards (Leuz et al., 2003; Joos and Leung, 2013). If it is assumed that both US GAAP and IFRS are high quality standards, the outcome of Joos and Leung (2013) and Armstrong et al. (2010) (positive market reaction with a higher likelihood of IFRS adoption in the US) show that the market reacts on the potential convergence benefits.

Where Beneish et al. (2015) focus on the macroeconomic effect of IFRS adoption for equity and debt investments, DeFranco et al. (2011) examined whether financial statement comparability changes the

ability for investors to acquire information. They found that an increase in financial statement comparability decreases the costs of acquiring information and increases the quality of information for analysts (De Franco, Kothari and Verdi, 2011). DeFranco et al. (2011) had different ways to measure comparability. The first method they used was measuring the covariation of earnings for different firms. This measure is called "earnings comparability" by DeFranco et al. (2011). The earnings comparability measure assumes that a high comovement of earnings between firms in the same industry-year shows an increase in comparability. The second way of measuring comparability used by DeFranco et al. (2011) is based on the assumption that both firms have the same stock price return.[3] Firstly all firms are paired based on their industry and fiscal-year. DeFranco et al. (2011, p. 900) assume that firms that experienced the same economic events have more comparable accounting what eventually leads to more comparable financial statements. Where stock returns are used as a proxy for economic events, the authors state that using just earnings for financial statement comparability is a limitation. Therefore DeFranco et al. (2011) first used an equation where earnings is the dependent variable and stock return the independent variable. The authors measure comparability with the "closeness of the functions between two firms". Due to differences in economic events experienced by firms, the authors use the accounting equation to predict the earnings based on the same economic event. With this approach the authors predicted earnings, assuming that both firms have experienced the same economic events. This second measure is called "accounting comparability".

DeFond et al. (2011) expected that the adoption of IFRS lowers the acquisition costs of information, and therefore results in higher cross-border investments. These acquisition costs are also mentioned by Yu (2010), who examined whether uniform accounting standards result in lower information asymmetry for investors. Yu (2010) states that these processing costs (similar to the acquisition costs of information mentioned by DeFond et al., 2011) decrease when accounting standards are more uniform. DeFond et al. (2011) found that mandatory IFRS adoption leads to a greater increase in foreign investments for companies in countries that have strong implementation credibility and a large increase in the uniformity of the accounting standards used by companies within an industry. The uniformity is measured with the change in the number of companies within an industry that use the same accounting standard after the adoption of IFRS. Moreover, DeFond et al. (2011, p. 256) suggest that uniformity of accounting standards does not necessarily result in comparability of financial statements. As IFRS is

[3] The authors use the regression for firm *i*: $earnings_{ijt} = a_i + b_i\ Return_i$
And for firm j: $earnings_{ijt} = a_j + b_j\ Return_i$. In the equation of firm j the return remains the return of firm i

principles-based, the differences in implementation are considered to be larger compared to more rules-based standards. The effect of credible accounting standards on the cross-border investments depends on economic institutions and the incentives of management (DeFond et al., 2011).

In summary, the literature suggests that the mandatory adoption of IFRS had a positive effect on foreign investments. Additionally, prior literature provides evidence that higher comparability leads to increasing foreign investments after mandatory IFRS adoption. There are also some mixed results about the cause of increased cross-border investments after IFRS adoption. Some authors argue that the increase in investments is due to an increase in financial statement comparability and convergence benefits. Others suggest that IFRS is perceived as a higher quality standard, which leads to an increase of cross-border investments.

2.3.2 Effect of uniform accounting standards for debt holders

The adoption of IFRS did not only have a positive effect on the investments in the equity market, the increasing effect is even stronger for investments in the debt market of that country (Beneish et al., 2015). This result is in line with Kim, Kraft and Ryan (2013), who state that more comparable financial statements reduce the uncertainty of debt market participants. The reduction in this uncertainty results in a lower cost of debt (Kim et al., 2013, p. 6). Kim et al. (2013) found that comparability of financial statements had a positive effect on the bid-ask spread of traded bonds, reduced the uncertainty of debt market participants and lowered the credit risk of the firm. Assuming that the implementation of IFRS makes financial statements more comparable, Li (2010) shows that the mandatory adoption of IFRS results in a significant decrease in the cost of capital. This supports the findings of Kim et al. (2013) that more comparable financial statements due to comparable accounting standards lead to a lower cost of capital. These results show the importance of comparable financial statements for the users of financial statements.

2.3.3 Uniform accounting standards and accounting practices

Dichev, Graham, Harvey and Rajgopal (2013) interviewed and distributed surveys among CFO's and financial executives. With the surveys and interviews the authors tried to gain insight in earnings quality. Firstly the authors examined the definition, characteristics and determinants of earnings quality. Secondly the results show how standard setting affects earnings quality. The third part of the results show the prevalence, magnitude and the detection of earnings management. The second part of the

research by Dichev et al. (2013) is relevant for this study. The results show that CFOs consider the US GAAP standards as a constraint in providing high quality reports. Moreover, the results show that CFOs want less regulations by standard setters and continuation of the convergence program of US GAAP and IFRS. In summary, according to the survey and interviews of Dichev et al. (2013) it can be concluded that CFO's consider financial reporting as more of a "compliance activity rather than as a means to innovate to deliver the best possible information to stakeholders "(p. 2). Dichev et al. (2013) show the demand for convergence of the standards by CFO's. The findings of Dichev et al. (2013) show that not only the investors react positively to uniform accounting standards (Joos and Leung, 2013), it also shows that managers are in favor of IFRS adoption. The remainder of this paragraph will examine whether uniform accounting standards will result in financial statement comparability, based on chosen accounting policies and practices. These studies mainly investigate if uniform accounting standards lead to the use of uniform accounting policies and practices.

Differences in financial statement comparability can arise due to differences in the application of the GAAP. The effect of accounting standards on consistency in chosen accounting policies has been investigated by several researchers. Bradshaw and Miller (2008) measure the chosen accounting policies with the accrual-cash flow relation and measures of conservatism. The approach of Bradshaw and Miller (2008) could be classified as a measure that is based on accounting policy choices. They examined whether a certain accounting method is chosen after adoption of US GAAP, and whether this accounting method is similar to accounting methods that are used by other companies in the industry. Bradshaw and Miller (2008) found that uniform accounting standards result in more comparable accounting numbers in a US setting. They investigated non-US companies that voluntarily adopted US GAAP. The authors determine financial statement comparability as an increase in the use of similar accounting methods after US GAAP adoption. Based on accounting outputs the authors found that the group of non-US companies substantially move toward the group of US firms after the adoption of US GAAP.

Additionally, Bradshaw and Miller (2008) found that stronger regulatory oversight increases the degree of compliance with US GAAP. The authors suppose that firms with a cross-listing in the US have a higher degree of regulatory oversight. When the regulatory oversight is stronger, there will be a higher level of compliance with the accounting standards. Bradshaw and Miller (2008) also show that uniform accounting standards lead to an increase in analysts' forecast accuracy. This is shown more extensively by Bradshaw, Miller and Serafeim (2011). Bradshaw et al. (2011) examine the market effect when

companies use different accounting methods compared to the widely used methods within their industry. When a company has, compared to the accounting method that is widely used in their industry, an "atypical" accounting method, the authors expect that the forecasts of these companies are less accurate. Consistent with their prediction, Bradshaw et al. (2011) found that "atypical" accounting methods lead to more forecast errors and larger forecast dispersion.

Although uniform accounting standards result in more comparable accounting numbers, the question whether this is beneficial arises. Sunder (2010) argues that uniform accounting standards do not lead to an improvement of financial reporting. To achieve higher quality financial reporting Sunder (2010) proposes a "balance between written standards and unwritten social norms". Even though the same rule could be applied in the same country and industry it will still depend on the economy of which the firm operates. The same set of rules does not necessarily lead to comparability of financial reports (Sunder, 2010). According to Sunder (2010) financial reports are "a result of economic and financial conditions on the one hand, and events and the applicable financial reporting rules on the other" (p. 12). The principles-based accounting standards require more professional judgment and expertise from the preparers and auditors of financial statements. Due to a higher degree of judgment involved in the application of the standard, there is a higher likelihood that the same events or transactions could have different outcomes in the financial report. According to Sunder (2010) this leads to a lower comparability of financial statements.

Prior research has mainly focused on the impact on the comparability after the adoption of US GAAP/IFRS, with initiatives from standard setters to create uniform accounting standards. Barth et al. (2012) examined the comparability of accounting amounts of US firms and non-US firms that adopt IFRS. To measure comparability Barth et al. (2012) used accounting-output-based measures of comparability that relate the stock returns to earnings. This approach used by Barth et al. (2012) is based on the accounting comparability measure of DeFranco et al. (2011). The authors found that the adoption of IFRS by non-US firms has a positive effect on the comparability of the accounting numbers of US firms that report according to US GAAP. Moreover, Barth et al. (2012) show that three measures of accounting quality (earnings smoothing, accruals quality and earnings timeliness) are a potential source of the increase in comparability of accounting amounts after IFRS adoption.

2.3.4 Effect of country-, legal- and political-factors on financial statement comparability

Cascino and Gassen (2015) investigated the effect of mandatory IFRS adoption on the financial accounting information in a cross-country setting. They investigate the cross-country effect on comparability after the adoption of IFRS. The difference between other studies that measured the impact of IFRS adoption on financial statement comparability is the determination of country- and firm-specific factors. The outcome of the research shows that the effect of IFRS adoption on the financial statement comparability is very weak. Using Germany and Italy as main sample for countries of IFRS adoption, the authors found that there are factors that are firm-, region- and country-specific (Cascino and Gassen, 2015). These firm-, region- and country-factors cause differences in the compliance of IFRS among different countries. In their measure of firm-level incentives of compliance they also determined the impact of a big 4 audit firm on the compliance of IFRS. The outcome shows that a big 4 audit firm leads to a higher compliance score for the firm compared to a non-big 4 audit firm.

Beuselinck et al. (2007) investigated the accounting comparability in 14 European countries and examined the underlying determinant of earnings comparability. They focused on the accruals – cash flow relation as an underlying determinant of comparability. The authors assume that the business cycle and the institutional country features are the most important drivers for reporting behavior. With the business cycle the authors want to examine whether the reporting choices differ when the economic circumstances (recession or expansion) change. The extent of the stock market, the domestic bank debt and the memberships of labor unions determine the institutional country features. The authors found that the institutional country features also have an impact on the reporting outcome. Beuselinck et al. (2007) suggest that the role of the Big 4 audit firms have to be examined to establish accounting comparability. The authors state that the Big 4 audit firms have the international expertise and the knowledge of national differences.

Joos and Lang (1994) found that the accounting measurement practices have an impact on the stock market valuation of accounting data and financial ratios. According to Joos and Lang (1994) the measurement practices in Germany during their sample period are more conservative compared to the UK. Joos and Lang (1994) provide evidence that there are differences in measurement practices for France, Germany and the UK. This could provide structural differences in the application of accounting standards per country. These country-specific measurement practices have an effect on the accounting-based performance measures. The outcome of the research of Joos and Lang (1994) is in line with the

contribution of Beechy (1999), who suggests that national characteristics cause accounting differences, even when the accounting standards are similar. According to Beechy (1999) these differences could arise due to economic factors, having a different way of doing business or different objectives and differences in political factors. Kvaal and Nobes (2010) investigated systematic differences in the accounting policies of five countries that adopted IFRS. The authors state that countries tend to continue the national practice where IFRS allows this. Kvaal and Nobes (2010, p. 185) found that there are systematic differences between countries in "trivial matters (such as the liquidity order of the balance sheet) and in more complex matters (such as the composition of cash flows from operations or the treatment of actuarial losses)".

It was stated in a report of EY (2006) that financial statements retain a strong national identity, even after the adoption of IFRS. An example given in the report (EY, 2006) is of a French retailer, whose financial statements look more similar to a French manufacturer than to a Dutch or UK retailer. The effect of the permissible choice of accounting policies in the application of IFRS is examined by Stadler and Nobes (2014). Where Kvaal and Nobes (2010) found that the country factors have an influence on the chosen accounting policy, Stadler and Nobes (2014) examine the impact of country, industry and topic factors on a IFRS policy choice. Moreover, the authors provide a framework that shows management decision-making of specific accounting policies and examine the extent to which country, industry and topic factors have an influence on the accounting policy making. Stadler and Nobes (2014) use the 16 IFRS policy topics that are also used in the paper of Kvaal and Nobes (2010). An important remark for this study is that the authors only use the observable accounting policy choices of management. The authors find that country factors have an effect on the IFRS policy choice when the choice does not have an influence on an important accounting number. The industry and topic factors have an influence on the IFRS policy choice, but only in specific circumstances. However, Stadler and Nobes (2014) find that country effects have a higher influence on the IFRS policy choice compared to industry and topic factors.

The findings of Stadler and Nobes (2014) are in consonance with the findings of Ball, Robin and Wu (2003). Ball et al. (2003) state that similar accounting standards are not enough to have similar earnings quality and earnings comparability. They state that comparability can be achieved with internationally uniform manager and auditor incentives. This is in line with the research of Beuselinck et al. (2007, p. 38), who show that the adoption of IFRS does not "per se result in "higher" financial reporting quality ".

2.3.5 Local standards and financial statement comparability

Another view is that a uniform accounting standard is not beneficial to financial statement comparability, because the standards are not adjusted to the local economic environment of each country. Lang, Maffett and Owens (2010) investigate the effect of IFRS adoption on the cross-country financial statement comparability. According to Lang et al. (2010) prior literature has mainly assumed that a common accounting standard increases the comparability of financial statements without a proper measure of comparability. The authors want to assess whether the comparability measures of financial statement comparability of DeFranco et al. (2011) hold in a cross-country setting. Lang et al. (2010) predict that the earnings comparability measure does not hold in a cross-country setting, because it does not capture the underlying differences in local economics. Lang et al. (2010) show that earnings comovement and accounting comparability are different and can have contradicting results. To measure the earnings comovement Lang et al. (2010) use the earnings covariance of DeFranco et al. (2011) (mentioned as measure of "earnings comparability" earlier). To measure the accounting comparability Lang et al. (2010) use the "accounting comparability" measure of DeFranco et al. (2011). Lang et al. (2010) argue that IFRS adoption does not automatically lead to an increase in comparability between countries. Firstly the "local incentives, oversight and legal environment" (Lang et al., 2010, p. 10) have a role in the implementation of the standards. Secondly the authors argue that earnings comovement increases after IFRS adoption without an increase in comparability of accounting practices. Lang et al. (2010) argue that local standards are created in a way which best reflect the economic environment of a country. IFRS might increase the comovement of the earnings, but the authors state that it is "less comparable in the sense of consistently capturing economic reality". This means that adoption of IFRS might lead to an increase in earnings comovement, but in reality the earnings are less comparable in a way that it captures the economic reality. As a reason Lang et al. (2010) state that managers report earnings that are similar to competitors to maintain their reputation. Moreover, the authors state that a reason for the increase in earnings comovement might be the similar approaches that can be used by an audit firm in each country. As multiple firms have the same accounting standard, the audit firm uses the same audit approach to maintain consistency and gain efficiency.

The Lang et al. (2010) research contradicts the results found by DeFranco et al. (2011) in a within-country setting. Where DeFranco et al. (2011) found that earnings comovement is positively related to forecast accuracy in a within-US setting, the findings of Lang et al. (2010) show that earnings

comovement is negatively associated with forecast accuracy in a cross-country setting. The results of Lang et al. (2010) show that the earnings comparability measure used by DeFranco et al. (2011) has other results in a cross-country setting. According to Lang et al. (2010) the underlying economics per country could cause the differences in the financial statements, even though there are similar accounting standards. Additionally, Lang et al. (2010) found that accounting comparability increases in the sample of non-adopters (firms that use local GAAP in countries where IFRS is not mandatory), and is constant for the group of mandatory adopters for the level of cross-country comparability. In summary, the results of Lang et al. (2010) show that in a cross-country setting the adoption of IFRS leads to an increase in the comovement of earnings (earnings comparability). This increase in comovement of earnings after IFRS adoption results in a negative effect on analyst coverage and forecast accuracy. This is at odds with the results of DeFranco et al. (2011) in a within-country setting. Moreover, the results show that the adoption of IFRS did not have an effect on the accounting comparability in a cross-country setting. However, the accounting comparability measure is positively associated with analyst coverage and forecast accuracy (which is in line with the research of DeFranco et al. (2011). The results of Lang et al. (2011) show that there is no evidence that the adoption of IFRS leads to an increase in comparability in a cross-country setting. Moreover, the results show that IFRS adoption does not impact the ability of analysts to compare financial information of multiple companies from different countries.

Lang et al. (2010) show that analysts are not able to have better financial statement comparability of firms from different countries, after the adoption of IFRS. Although the implementation of global accounting standards such as IFRS have the aim to make the financial statements internationally more comparable, it is not always the case that similar accounting standards make financial statements comparable in a cross-country setting. The results of DeFranco et al. (2011) and Lang et al. (2010) suggest that comparability in a within-country setting might increase after the adoption of IFRS, but that the adoption of IFRS does not have a positive effect on the comparability in a cross-country setting.

2.3.6 Summary financial statement comparability

The question of this chapter is whether uniform accounting standards lead to comparability. Having considered prior literature showing the impact of comparable financial statements, it is possible to set out the implications of uniform standards for stakeholders and accounting practices. Firstly this section shows that a uniform high quality standard is perceived as positive by investors. The question whether this is due to the quality of the standards or cross-country comparability of financial statements is not

entirely clear. Research shows that even though the implementation of IFRS had a positive effect on the comparability in a within-country setting, the effect on a cross-country level is marginal. Next to the country-specific effects there are also political factors such as regulatory oversight and legal environment that effect the results of comparability. In addition, prior literature shows that industry factors and enforcement of the standards also have an effect on the comparability of financial statements. Overall, this section shows that uniform standards do not automatically lead to comparability of the financial statements.

2.4 Auditor characteristics

This section examines the impact of auditor characteristics on the financial statement outcome of a client. It is assumed that the audit firm uses working-rules to conduct the audit. Kothari et al. (2010) and Francis et al. (2014) assume that each big 4 audit firm has its own approach in the implementation of auditing standards and application of accounting principles. Due to standardized working-rules and consistency in the detection of client-errors by each big 4 audit firm, the assumption in this paper is made that financial reports that are audited by the same big 4 audit firm have more financial statement comparability compared to financial statements that are audited by different audit firms. This chapter provides prior literature that document the impact of audit firms on the financial statement and whether characteristics of the audit firm result in differences in financial statements.

2.4.1 Incentives

According to Ball, Robin and Wu (2003) the reporting quality is subjected to the incentives of managers and auditors. Ball et al. (2003) argue that these incentives depend on market and political forces. The market forces consider the demand of the market for high-quality financial reporting and the political forces depend on the governmental pressure on the desired reporting quality. Ball et al. (2003) argue that these forces provide incentives for managers and auditors to issue low-quality financial reports when the market and political forces are low. This can be contrasted to circumstances where the market and political forces are high, which lead to incentives for managers and audit firms to issue high-quality financial reports. The authors show, based on research with data of East Asian countries, that the incentives of managers and auditors in the preparation of financial statements have an impact on the financial reporting policies choices. DeFond et al. (2011) found that incentives of managers have an impact on the financial statement comparability. Additionally, DeFond et al. (2011) state that the credibility of the implementation of the accounting standards by management increases the

comparability. Credibility is a term used by DeFond et al. (2011) to define how faithful the standards are applied in the financial statements. Additionally, DeFond et al. (2011) show that the institutional environment has an impact on the credibility of implementation.

In the survey of Dichev et al. (2013, p. 42) CFOs of US companies are asked about determinants of earnings quality. In their survey and interviews the CFOs also examined audit firm behavior and the effect on earnings quality. In the survey and interviews the CFOs mentioned that the FASB "over-emphasizes" the rules. According to the CFO "over-emphasis on rules" does affects the quality of the audits. Some CFOs argue that the interpretation of the accounting rules in an audit firm comes from "high above now rather than from the field". Another interesting statement provided by a CFO in an interview conducted by Dichev et al. (2013) is that interpretations of auditors are driven by litigation and fear. They follow a strict interpretation of the rules in order to not have trouble with the SEC instead of doing what is relevant for the business.

2.4.2 Effect audit firm on financial statement

Prior research shows that the financial statements of companies that are audited by a larger audit firm are of a higher quality. Becker, DeFond, Jiambalvo and Subramanyam (1998) examined the impact on accruals when a company is audited by a big 4 audit firm. The authors use a Jones (1991) model of discretionary accruals to measure earnings quality. They found that companies that are audited by a larger audit firm (Big six) have higher earnings quality. The research of Becker et al. (1998) is relevant because it shows that an audit firm has an impact on the financial statement. As mentioned earlier Lang et al. (2010) find an increase in the comovement of earnings in a cross-country setting after the adoption of IFRS. One explanation of the similarity in earnings among countries provided by Lang et al. (2010) is the consistent approach of audit firms. Lang et al. (2010) argue that when there are uniform accounting standards, the audit firm will use similar audit approaches to maintain consistency and gain efficiency.

Johnson, Jamal and Berryman (1991) designed a field study to investigate whether fraud was detected earlier by experienced auditors who are specialists in a specific industry. They made a distinction between novice and experienced auditors and whether auditors are industry specialists. Johnson et al. (1991) found that industry expertise and experience is related to fraud detection. The impact of a specialist auditor on the audit quality is also investigated by Solomon, Shields and Whittington (1999).

They state that auditors who are specialized in an industry have more knowledge, which results in better audit judgments. The improvement in audit judgments results in higher accuracy with regard to the prediction of errors in the financial statements. Other research that examined the impact of industry expertize of the audit firm also shows that the firms audited by an audit firm that is specialized in an industry have less discretionary accruals (Balsam, Krishnan and Yang, 2003).

Frankel, Johnson and Nelson (2002) investigated the relation between audit fees for non-audit services and earnings management. They found that companies that pay auditors more non-audit fees have larger discretionary accruals. Moreover Frankel et al. (2002) provide evidence that companies that pay their audit firm more non-audit fees are more likely to beat or meet the earnings forecasts. Frankel et al. (2002) provide additional evidence showing that fees have an impact on the discretionary accruals in a financial statement.

The articles of Becker et al. (1998), Johnson et al. (1991) and Frankel et al. (2002) are relevant for this research because they show that characteristics of the audit firm have an influence on the financial statement. In summary, Becker et al. (1998) show that a larger audit firm leads to less discretionary accruals and a higher earnings quality, Johnson et al. (1991) show that industry expertise of the audit firm leads to the detection of fraud and Frankel et al. (2002) show that more non-audit fees result in larger discretionary-accruals.

2.4.3 In-house working rules of audit firms

Kothari, Ramanna and Skinner (2010) argue that audit firms develop working rules to standardize the accounting practice. These working rules are unique for each audit firm and serve as a framework for guidance and standardization in the application of accounting and auditing standards. Kothari et al. (2010) provide four reasons why managers, accountants and auditors use working-rules for the day-to-day application of principles:

- It is not cost effective to use principles instead of working-rules on a daily basis.
- In case of litigation, an audit firm has a rule it followed instead of an 'abstract' principle.
- The reputation of the auditor could lead to working-rules.
- Users want auditors to work efficiently, so users prefer audit reports that are prepared with specific working rules of the audit firm.

There are studies that classified audit firms based on their software products or information technology (IT) systems. Janvrin, Bierstaker and Lowe (2008) argue that the "deep pockets" of the larger audit firms create more possibilities for the larger audit firms to invest in IT systems which in turn leads to higher quality audits. Janvrin et al. (2008) show that auditors increasingly use and rely on IT systems. This is in line with prior research showing that audit automation and procedures lead to an increase in the audit quality and productivity (Vera-Munoz, Ho and Chow, 2006; Dowling and Leech, 2014). Vera-Munoz et al. (2006) show that each big 4 audit firm use their own systems to capture and retrieve data, information and knowledge[4]. Janvrin et al. (2008) show that IT is one of the most important decision tools for audit firms. This decision tool could influence the audit judgment.

Francis et al. (2014) state that these unique set of working rules differ systematically in their approach of an audit. This is the main reason for the existence of 'audit style'. Francis et al. (2014) found that the accruals and earnings are more consistent and comparable for firms that have the same auditor than firms that differ from auditor in the same industry-year in a US-setting. So, the 'audit style' of a Big 4 audit firm has an influence on the financial statement comparability. The authors used three approaches to measure comparability. The first approach is based on accruals, and will be used in my research as well. The second approach is similar to the approach taken by DeFranco et al. (2011) and earlier in this chapter explained as the "earnings comparability" measure. These measures of comparability are in line with the methods used by DeFranco et al. (2011) and Lang et al. (2010). As stated earlier, according to Lang et al. (2010) the earnings comparability measure is not effective when examining cross-country differences. Moreover, Francis et al. (2014) found that Big 4 audit firms have a larger effect on accounting comparability than non-Big 4 audit firms. Francis et al. (2014) forms the basis of my research. Where Francis et al. (2014) linked the influence of the each big 4 audit firm to the financial statement comparability, my research extents the question to whether the influence of the big 4 audit firm is larger when the standards are more principles-based. Therefore the findings and methods used by Francis et al. (2014) are essentially relevant for my study.

[4] Examples are: KPMG's KWorld™, PricewaterhouseCoopers' TeamAsset™ & KnowledgeCurve™ and EY's KnowledgeWeb™ (Vera-Munoz, Ho, & Chow, 2006, p. 139).

2.5 Summary and conclusion

The literature review in this paper is divided in three sections. The first section elaborates on the differences between rules-based and principles-based standards. Important for this research is the classification of US GAAP and IFRS as rules-based or principles-based standards. US GAAP is considered to be a more rules-based accounting standard and IFRS is considered to be a principles-based accounting standard. Moreover, the link between the accounting standards and financial statement comparability is provided. Literature about whether rules-based or principles-based standards provide more comparable financial statements is mixed. Some authors argue that strict-guidelines in the audit and accounting standards make financial statements more comparable, while others argue that professional judgment is necessary in the application of the audit and accounting standards to reflect the economic reality and make financial statements comparable (Nobes, 2005).

Where standard setters aim to achieve comparable financial statements with uniform accounting standards, prior research shows that uniform accounting standards do not automatically lead to an increase in financial statement comparability. The importance of comparable financial statements is shown by increased cross-border investments and decreased the cost of capital. However, with uniform standards there are still factors that influence the financial statement comparability among firms. Those factors relate to country and local factors that influence the degree of comparability of financial statements in particular. Where this research elaborates on the effect of the audit firm on the comparability of financial statements, the third section provides prior literature that examines audit firm characteristics to the financial statement comparability. As it is not efficient for audit firms to work with accounting principles on a daily basis, each audit firm has their own working-rules (Kothari et al., 2010). Differences between audit firms could be the result of a specific IT system a firm uses, the used audit method to conduct an audit or the incentives of an audit firm. The audit procedures of big 4 audit firms and non-big 4 audit firms are not comparable to each other. It is shown that an audit firm has an impact on the financial statements (Francis et al., 2014). Whether this impact increases when the accounting standards are more principles-based is unclear. When the standards are more principles-based there is more need for professional judgment in the application of the accounting and the auditing standards. Presumably this increases the degree that financial statements of firms with the same audit firm are more comparable to each other, compared to a setting with rules-based standards. This prediction will be investigated in this research. The summary table in the appendix shows relevant articles that

elaborated on the impact of accounting standards on the financial statement comparability and the effect of auditor characteristics on financial statement comparability.

This chapter provides an overview of literature that forms the basis for my hypotheses development in chapter 4. Both the standard setters and the audit firm have an impact on the comparability of financial statements. Whether the impact of the audit firm increases in a UK setting where more professional judgment is required will be investigated by examining the three hypotheses in chapter 4.

3. Audit regulation

3.1 Introduction

This chapter elaborates on the audit regulation in the UK and how it relates to the US. In the US accounting scandals such as Enron, Ahold and WorldCom lead to the implementation of the SOx in 2002 and the creation of the Public Company Accounting Oversight Board (PCAOB). Where in the US the PCOAB was created after the scandals, the Financial Reporting Council (FRC) also reacted after the accounting scandals with the creation of the Professional Oversight Board (POB) in 2004. Both boards have the tasks to, independently, oversee the audits of public interest entities. This chapter aims to provide an overview of the audit regulation in the UK in relation to the US. Additionally, this chapter examines whether audit regulation impacts the working-rules of an audit firm.

3.2 Independent oversight bodies

The FRC is the independent regulator in the UK and is responsible for maintaining high quality corporate governance. As the FRC wants to maintain independence as a public oversight body, the FRC states in their articles of association that practicing auditors can not be a member of the board.

It is explained in the corporate governance and stewardship codes set by the FRC what is necessary to be sure of trustworthy behavior and information. With the corporate governance code the FRC "sets out standards of good practice in relation to board leadership and effectiveness, remuneration, accountability and relations with shareholders" (FRC, 2014). In this code the FRC defines the term "effective board practice". This includes: "accountability, transparency, probity and focus on the sustainable success of an entity over the longer term" (Financial Reporting Council, 2014, p. 1). The stewardship code that is published by the FRC has the aim to make institutional investors more engaged with corporate governance. Since the adoption of IFRS in the UK, the IASB sets the accounting standards. Although the IASB sets the accounting standards, the FRC has the responsibility to ensure that published information is compliant with IFRS. Bae et al. (2008) show that the UK GAAP are the closest to the IFRS, compared to all other countries that adopted IFRS.

The role of the FRC in audit regulation is important for this research. The FRC published the Audit Firm Governance Code in 2010. The Audit Firm Governance Code only applies for the seven biggest audit firms (Baker Tilly, BDO, Deloitte, EY, Grant Thornton, KPMG, PwC) that together audits 95% of the companies that are listed at the main market or London Stock Exchange (LSE). The code is a formal

benchmark that is divided in six parts namely: leadership, values, independent non-executives, operations, reporting and dialogue. In 'key facts and trends in the accountancy profession' published by the FRC in June 2014 is shown that 99% of all the FTSE 100 companies are audited by a big 4 audit firm. In their yearly Audit Quality Inspection the FRC found that three big 4 audit firms have conducted audits that need "significant improvement" (ICAEW, 2014). In their quality review it was EY that had the worst score with 4 out of 16 audits that needed "significant improvement". Moreover the FRC conducted a survey among the audit staff of the big 4 offices. The FRC found that in the case of EY it was in that same year that only 50% of the staff agreed with the statement that they had enough time to deliver a high quality audit. An important notion of the FRC in their Audit Quality Inspection is that "quality is not consistent across all audit firms and types of company" (FRC, 2014). It is also mentioned by the FRC that audit quality differs per industry. The FRC considers the quality of bank audits as "disappointing" (FRC, 2014; Economia, 2014).

The financial crisis in 2008 showed that audit quality (especially for financial services companies) was insufficient (ICAEW, 2010). Where after the financial crisis the impression emerged that audit regulation in the UK was too much self-regulated, the emphasis shifted towards more independent regulation. A development in this regulation is the Audit Quality Framework developed by the FRC in 2008. In this framework the FRC aimed "to codify audit quality" (Holm and Zaman, 2012). Holm and Zaman (2012) analyzed the Audit Quality Framework of the FRC and examined whether companies and stakeholders find the Audit Quality Framework sufficient. With their attempt to codify audit quality, the FRC was the first regulatory body that codified audit quality. Although the Audit Quality Framework of the FRC is seen as a step forward, Holm and Zaman (2008) conclude that accounting bodies, audit firms and investors consider the attempt of the FRC insufficient.

When an audit firm audits a company that is publicly listed in the US, the SEC requires the audit firm to be registered at the PCAOB. Since the PCAOB started their inspections of audit firms, the audit quality of big 4 audit firms improved significantly (Carcello, Hollingsworth and Mastrolia, 2011). Carcello, Hollingsworth and Mastrolia (2011) found a significant decrease of discretionary accruals in the years after the PCAOB started with their audit inspections. When the PCOAB reviews an audit it includes (Carcello, Hollingsworth and Mastrolia, 2011, p. 86; Gillan, 2005):

1. Whether the firm is compliant with all the applicable rules (GAAP, auditing standards, SEC rules and the control guidelines).
2. How the firm is managed.

3. Reviewing audit engagements.

After the publication of SOx in 2002, the PCAOB was created as a nonprofit corporation that oversees the audits (PCAOB , 2015). Before the creation of the PCAOB the profession was self-regulated by the American Institute of CPAs (AICPA). Where the AICPA worked with a peer review auditor program, the PCAOB conducts an independent inspection. That the PCAOB inspections have an influence on the way audit firms work is shown by Drake, Goldman and Lusch (2014). The authors investigate whether the deficiencies that are identified in the PCOAB part II report[5] result in changes in the financial statements of an audit firm's client. Where the FRC published reports that are related to the whole audit profession of the Big 4 audit firms, the PCAOB conduct inspections for each audit firm. Drake et al. (2014) identified weaknesses in the audit of tax accounts in the Part II report of Deloitte. The authors found that the clients of Deloitte increase the uncertain tax benefits (UTBs) after the PCAOB part II report.

The PCAOB part II inspection of EY also shows that audit regulation has an influence on the way audit firms perform their audits. The public response of EY after the PCOAB part II inspection states (Johnson E., 2015). This response of EY suggests that audit regulation changes the way how an audit firm conducts an audit:

"The Board determined that we did not address certain quality control matters to the Board's satisfaction during the 12-month period following the issuance of the inspection report. We believe we took significant remedial actions with respect to all these matters, including making significant enhancements in our resources, policies and practices. In each of the areas noted, we have provided our audit professionals with new audit tools, additional training and expanded technical guidance. Overall, we have investigated thousands of partner and staff hours on these issues and believe we approached each Board criticism seriously and responsibly" (PCAOB, 2010a).

The research of Drake et al. (2014) and Johnson (2015) show that audit regulation has an impact on working-rules of audit firms. That audit regulation affects the audit quality is shown by Church and Shefchik (2012). Church and Shefchik (2012) investigated whether large audit firms have less deficiencies after the PCAOB started with their inspection reports. They found a decrease in the amount of deficiencies during 2004-2009. The findings of Church and Shefchik (2012) show that inspections and audit regulation influences the number of audit deficiencies.

[5] The PCOAB part II report provides an assessment of the quality control system of an audit firm. This includes critics and potential defects in the quality control system of the audit firm (PCAOB, 2010a).

3.3 Conclusion

This chapter elaborates on the audit regulation in the UK and US. The accounting scandals that emerged resulted in more regulation in both the US and the UK. The US published SOx and created the PCAOB, and in the UK the POB provides the assurance that the audit firms implement the standards in the right way. Both in the US and the UK the oversight board conduct inspections and publishes reports about the quality of the conducted audits. These inspections have effect on the way the firm conducts an audit, shown by Drake et al. (2014) and the response of EY on the PCOAB Part II inspection. As shown in the public reaction after the inspection report, EY stated that it changed their audit tools, trainings scheme and technical guidance. Both outcomes suggest that the audit regulation has an influence on the audit approach each audit firm has.

4. Hypotheses development

Based on prior research it can be assumed that the accounting standards and the audit firm have an effect on the comparability of financial statements. Mentioned by Kothari et al. (2010) financial statements based on principles-based accounting standards are not comparable. According to Kothari et al. (2010) this is because each audit firm has different interpretations of the standards. Kothari et al. (2010) argue that each audit firm has their own in-house working rules to conduct an audit. Research that examines the differences between rules-based and principles-based standards and whether financial statements are more comparable show mixed shows. Kothari et al. (2010) predict that rules-based accounting standards lead to more comparable accounting standards due to less influence of professional judgment. Kothari et al. (2010) and Francis et al. (2014) both mention that when accounting standards are principles-based, the audit firm will develop in-house working rules. Whether the impact of an audit firm on financial statement comparability is higher when the accounting standards are more principles-based is not mentioned in prior research.

Prior literature shows that the audit firm characteristics and the accounting principles have an influence on the financial statements. Moreover, the reports published by oversight boards in the US and UK show that audit regulation effects the way audit firms conduct their audits. Additionally, literature shows that inspections of oversights boards also effect the accounting policies of firms with the same audit firm (Drake et al., 2014).

The first hypothesis examines whether the working rules of a big 4 audit firm have an impact on the comparability of financial statements in the US. Because this study eventually aims to compare the findings of a rules-based (US) with a principles-based (UK) setting, the effect in a rules-based setting is examined first. The predicted outcome is in line with the research of Francis et al. (2014), who found that the differences in total and discretionary accruals are lower when firms have the same audit firm.

H1: Financial statements of companies that are audited by the same big 4 audit firm have financial statements that are more comparable than financial statements that are audited by (two) different big 4 audit firms.

The expected findings are in line with the findings of Francis et al. (2014); a lower absolute difference of total and discretionary accruals when companies have the same big 4 audit firm. This hypothesis is tested in a US setting and a UK setting.

After the impact of the audit firm on the financial statement comparability are examined in a US setting (rules-based) and a UK setting (principles-based) the expectations are that the influence of the audit firm on the financial statement comparability are larger when the accounting standards are principles-based (UK).

H2: The impact of in-house working rules on the financial statement comparability has a greater effect in the UK compared to the US.

All the hypotheses stated above are in alternative form.

5. Research design

5.1 Introduction

This chapter explains the research design using an elaboration of previous used models to measure financial statement comparability. Afterwards, the model that is used in this research will be explained, and the calculation methods of certain variables are examined. After the models and regressions are explained, a closer look of the control variables and the methodology is given. This chapter aims to provide an overview of the research design that is used to gather the results that are shown in the next chapter.

5.2 Models

The research design will be based on the assumption that 'audit style' will have an impact on the financial statement comparability. Prior methods show several techniques to measure financial statement comparability. As previously explained the method of "accounting comparability" and "earnings comparability" of DeFranco et al. (2011) is widely used in previous research. As previously explained the accounting comparability method measures financial comparability with earnings and stock returns. DeFranco et al. (2011) assume that financial comparability is high when the earnings of each pair of firms capture the underlying stock return in the same way. As mentioned by Francis et al. (2014) audit style has an impact on the financial statement comparability due to the in-house rules of an audit firm. Due to these in-house working rules companies with the same big 4 audit firm are expected to have more similar accounting choices and financial statements as companies with different big 4 audit firms. The accounting comparability method will not be used, because my research assumes that the audit firm has an impact on the accounting choices and the financial statements. This effect is on the financial statement. This is regardless the reaction of the market.

The earnings comparability measure of DeFranco et al. (2011) is also used by Francis et al. (2014). In this method the covariation of the earnings between the paired firms will determine whether the financial statements are comparable. The method used to pair the companies will be based on industry and fiscal year, and is similar to the method used in this research. Francis et al. (2014) used the earnings comparability method of DeFranco et al. (2011) within a US sample from 1987 to 2014 based on quarterly data. As the earnings comparability method captures the covariance of two firms in the same industry over time (in the research of Francis et al. (2014) 16 quarters), this method will not be used in

my research. The sample of UK firms in this research is from 2005-2014. Due to huge economic shocks during the sample period in this research, it is likely that the covariation of earnings between firms over this period is caused by economic shocks. As the earnings covariation method is a method that measures the comparability over time, this method will not be used in this research.

The best method to observe the effect of audit style on the accounting choices and the financial statement is the method used by Bradshaw and Miller (2008). Bradshaw and Miller (2008) base their method on the chosen accounting policies. Although it is interesting to see whether the audit style affects the chosen accounting policies, the method of Bradshaw and Miller (2008) will not be used in this research due to a lack of available data.

Consistent with the research by Francis et al. (2014) the similarities in audit style will be measured with the cross-sectional similarities in the levels of total and discretionary accruals. This means that this research assumes that the audit firm affects the financial statement comparability due to the accrual component. The design is similar to the design used by Francis et al. (2014) based on the cross-sectional similarities in the levels of contemporaneous measures by Joos and Lang (1994). The total accruals will be calculated with the earnings before extraordinary items minus the operating cash flows. To scale the total accruals this outcome will be divided by the lagged total assets. This leads to the following formula (Jones, 1991)[6]:

$$\boldsymbol{TA_t = Earnings\ before\ extraordinary\ items - Operating\ Cash\ Flow}$$

Where:

TA_t = Total accruals over period *t*

Prior literature shows that the Jones model (1991) and the modified Jones model (Dechow, Sloan and Sweeney, 1995) are widely used models to measure discretionary accruals. The discretionary accruals in my research will be calculated based on the modified Jones model (1991) including the contemporaneous performance measure of Kothari et al. (2005). Francis et al. (2014) measure the discretionary accruals with the Jones (1991) model including the contemporaneous performance

[6] Total Accruals = Net Income (Loss) – Operating Activities Net Cash Flow – Extraordinary Items and Discontinued Operations (Cash Flow), [COMPUSTAT: NI, OANCF, XIDOC]

measure of Kothari et al. (2005). To examine whether there are differences between the modified Jones model and the Jones (1991) model (both controlled for contemporaneous performance (Kothari et al. (2005)), a robustness test will be done with the Jones (1991) model that Francis et al. (2014) used. The total accruals have a discretionary and non-discretionary component. Jones (1991) model estimates the normal accruals as a function of the change in revenues and the level of property, plant and equipment. Dechow et al. (1995) adds accounts receivables as a variable to the Jones (1991) model. Prior research by Kothari et al. (2005) shows that the modified Jones (1991) model including return on assets better controls for contemporaneous performance on discretionary accruals. Kothari et al. (2005) have two approaches to control for performance in the Jones model. The variable return on assets could be included to the regression or the firms could be matched based on return on assets. Kothari et al. (2005) found that the matching return on assets provide better results than adding return on assets. However, the authors also conclude that including the return on assets as an independent variable in the regression provides better results than merely a Jones (1991) model. To control for contemporaneous performance the return on assets will be added to the model. This is not the "performance-matched approach" that is explained by Kothari et al. (2005), but this approach is called the "regression-based approach" by Kothari et al. (2005). This approach adds the return on assets to the modified Jones (1991) model to control for contemporaneous performance.

$$\frac{\boldsymbol{TA_{it}}}{\boldsymbol{A_{it-1}}} = \boldsymbol{a_1}\left(\frac{\mathbf{1}}{\boldsymbol{A_{it-1}}}\right) + \boldsymbol{\beta_1}.\frac{\boldsymbol{\Delta REV_{it}} - \boldsymbol{\Delta REC_{it}}}{\boldsymbol{A_{it-1}}} + \boldsymbol{\beta_2}.\frac{\boldsymbol{PPE_{it}}}{\boldsymbol{A_{it-1}}} + \boldsymbol{\beta_3}.\boldsymbol{ROA_{it-1}} + \boldsymbol{\varepsilon_{it}}$$

$$\boldsymbol{NDA_{it}} = \boldsymbol{a_1}\left(\frac{\mathbf{1}}{\boldsymbol{A_{it-1}}}\right) + \boldsymbol{\beta_1}.\frac{\boldsymbol{\Delta REV_{it}} - \boldsymbol{\Delta REC_{it}}}{\boldsymbol{A_{it-1}}} + \boldsymbol{\beta_2}.\frac{\boldsymbol{PPE_{it}}}{\mathbf{A_{it-1}}} + \boldsymbol{\beta_3}.\mathbf{ROA_{it-1}}$$

$$\mathbf{DA_{it}} = \mathbf{TA_{it}} - \mathbf{NDA_{it}}$$

Where:

A_{it-1}	= Total assets of firm *i* at year *t*-1
$\alpha_1, \beta_1, \beta_2, \beta_3$	= Parameters estimated by using regression
DA_{it}	= Discretionary accruals of firm *i* over period *t*
NDA_{it}	= Non-discretionary accruals of firm *i* over period *t*
PPE_{it}	= Gross property, plant and equipment of firm *i* at year *t*
ΔREC_{it}	= Change in accounts receivables of firm *i* over period *t*
ΔREV_{it}	= Change in revenue of firm *i* over period *t*

ROA_{it-1} = Return on assets[7]

TA_{it} = Total accruals of firm *i* over period *t*

The specific parameters ($\alpha_1, \beta_1, \beta_2, \beta_3$) will be calculated for each industry-year. The different industries are divided based on the first two digits of the Standard Industrial Classification (SIC) code. The coefficients that are used in the calculation of total accruals are used for the prediction of the non-discretionary accruals. Discretionary accruals are calculated as the difference of total accruals and non-discretionary accruals.

To test the financial statement comparability in earnings the firms will be divided based on their industry and year. Each firm will be paired with each industry peer in the same fiscal year. This means that within each industry and fiscal year all unique combinations of firm-pairs are in the paired sample[8]. To be sure that the there is only one firm-pair combination, all pairs that contain the same firm-pair combination or are matched with itself (A-A, B-A, C-A, C-B) are dropped. Due to the matching of firms-pairs based on having the same fiscal year and industry, the data could be regarded as a cross-sectional data. The absolute difference between the total accruals and the discretionary accruals between the pair of firms will be calculated with the following formulas:

$$\mathbf{DTA_{ijt}} = \mathbf{abs}(\mathbf{TA_{it}} - \mathbf{TA_{jt}})$$

$$\mathbf{DDA_{ijt}} = \mathbf{abs}(\mathbf{DA_{it}} - \mathbf{DA_{jt}})$$

Where:

DTA_{ijt} = Absolute difference of total accruals of the matched firm-pair

DDA_{ijt} = Absolute difference of discretionary accruals of the matched firm-pair

In the equation above are firm *i* and firm *j* a matched firm-pair with the same industry and fiscal year. After calculation of the absolute[9] difference between the total and discretionary accruals of the firm-pairs based on their industry and year, the regression analysis will examine whether firms that have the

[7] Is calculated with: return of firm *i* over year *t* divided by the lagged total assets (A_{it-1})

[8] For example: if based on industry and fiscal year there are three firms (firm A, firm B & firm C). The firm-pairs will be A-B, A-C and B-C.

[9] The absolute value is taken to examine the effect on the difference. For example: when firm *i* has total accruals of -0.4 and firm *j* has total accruals of 0.2. This leads to (-0.4 - 0.2 = - 0.6) 0.6 difference. When firm *i* has 0.2 total accruals and firm *j* has -0.4 total accruals. This results in a difference of (0.2 - -0.4 = 0.6) 0.6.

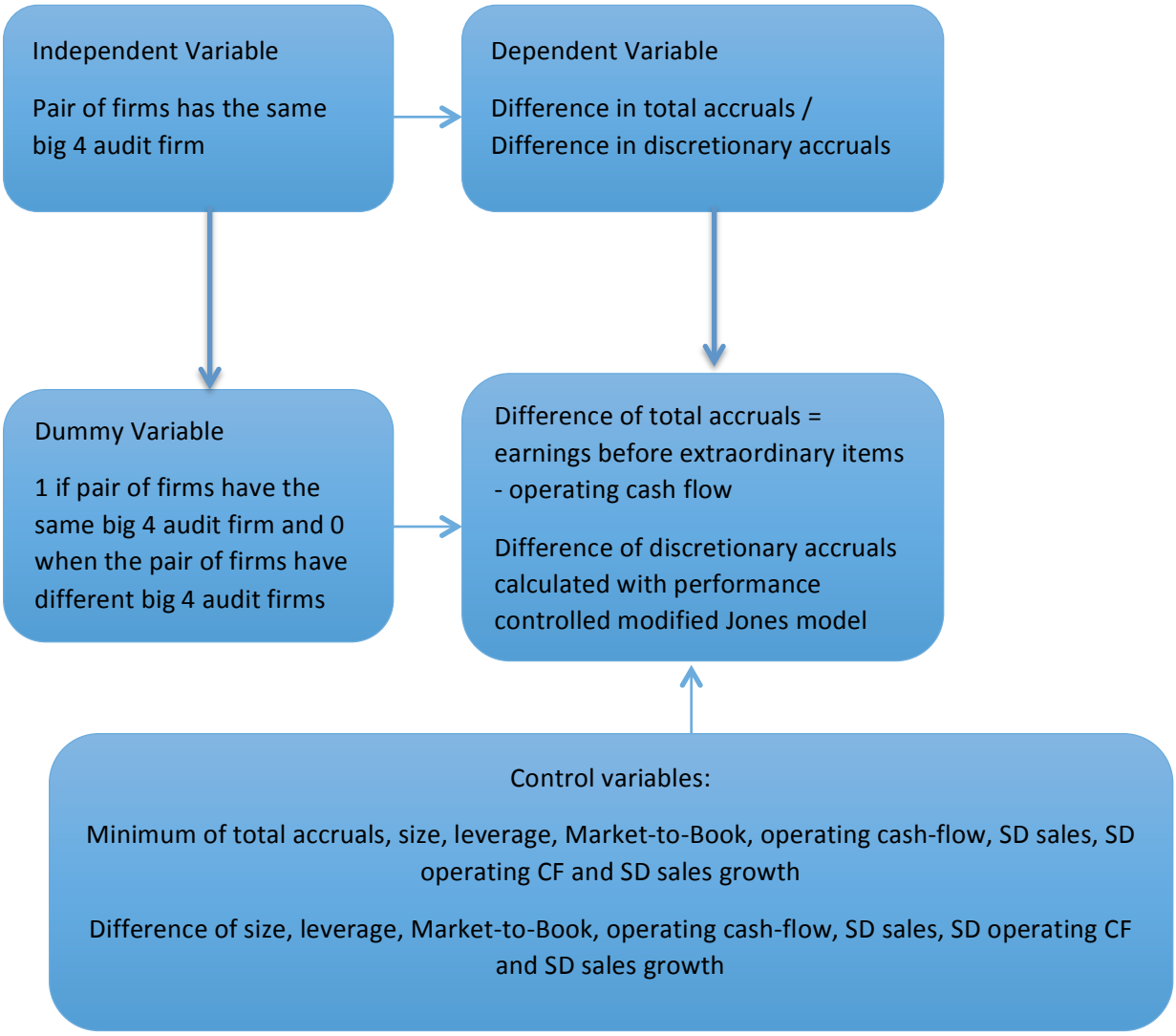
same big 4 audit firm are more likely to have the same total and discretionary accruals. The ordinary least square regression will examine whether two firms with the same big 4 audit firm have more comparable financial statements. This regression is also used by Francis et al. (2014) in their research.

$$\mathbf{DTA_{ijt}} = \boldsymbol{\alpha_0} + \boldsymbol{\alpha_1}(\mathbf{SameBig4}) + \boldsymbol{\alpha_2}\mathbf{Controls} + \boldsymbol{\varepsilon_t}$$
$$\mathbf{DDA_{ijt}} = \boldsymbol{\alpha_0} + \boldsymbol{\alpha_1}(\mathbf{SameBig4}) + \boldsymbol{\alpha_2}\mathbf{Controls} + \boldsymbol{\varepsilon_t}$$

The variable SameBig4 is a dummy variable that is 1 when a firm-pair has the same big 4 audit firm and is 0 when a pair of firms have different big 4 audit firms.

The Libby boxes are originally called the Predictive Validity Framework (Libby, 1981; Libby, Bloomfield and Nelson, 2002, pp. 793-805). The Libby boxes show the conceptual independent and dependent variables. To be able to measure the variables these conceptual variables are operationalized. So, the Libby boxes show how these variables are operationalized. To be sure that the tested causal effect is not effected by a structural error term, the stated control variables are added to the regression.

Libby boxes (Libby, 1981; Libby et al., 2002)



5.3 Controls

The model assumes that firms that are in the same industry and year are subjected to the same economic shocks. By matching firms based on their industry and year, the assumption is made that those firms have the same economic circumstances. The set of control variables is based on the set of control variables by Francis et al. (2014) namely; size, leverage, market-to-book, operating cash flow, loss probability, standard deviation of sales, standard deviation of quarterly sales, operating cash flow and sales growth. This increases the comparability of the results with the research of Francis et al. (2014). The control variables size and market-to-book are widely used control variables. Lang et al. (2010) also use these two variables to control for firm-specific characteristics. The research expects that firms with similar size and market-to-book ratio are more comparable with each other. Francis et al.

(2014) extend the amount of control variables that are used in the research of Lang et al. (2010) in the measurement of comparability. The control variables are based on economic fundamentals that cause comparability between firms. For example, a firm-pair in the same industry-year with similar size, might have more similar financial statements. As both stated by Francis et al. (2014) and Lang et al. (2010) there is no prior literature that provides evidence for appropriate control variables for a regression that captures financial statement comparability.

Bartov, Gul and Tsui (2000) show that market-to-book ratio and financial leverage are important control variables for earnings management. When companies have similar earnings performance, market-to-book ratio or financial leverage ratio, there is a possibility that firms have similar accruals due to a higher likelihood of earnings management.

The predicted signs of the control variables are all negative for the minimum values of each firm-pair. The minimum value is the lowest value in each firm-pair[10]. The expected sign for variables that show differences is positive. The expectation is that if firm-pairs have a more similar size, leverage, market-to-book, operating cash flow, loss probability, standard deviation of sales, standard deviation of cash flow and standard deviation of sales growth they have more comparable financial statements and comparability in the earnings of the firm. Firms are more similar when the minimum value of the firm-pair in the given variables is higher or when the absolute difference is lower[11]. The absolute difference in total and discretionary accruals will be lower (more comparable earnings) when firms have more comparable characteristics. The predictions in my research are based on the notion that firms with the same economic fundamentals have more similar accruals. However, as Francis et al. (2014, p. 614) mention there is no underlying theory which helps to predict the signs of each coefficient.

5.4 Methodology US

In line with the first hypothesis my research examines the effect of audit style on the total and discretionary accruals in a US setting. I start with 342,849 firm-year observations obtained from the COMPUSTAT North America database. I take only the observations since fiscal year 2000, due to audit firm mergers of the big 4 audit firms earlier. Audit firm Arthur Anderson is excluded from the sample,

[10] For example: the calculation of MinSize. This variable includes all the lowest values of size for each firm-pair. When firm A in a firm-pair has a size of 20 and firm B a size of 18. The MinSize for that specific firm-year observation is 18.

[11] When the minimum value in the equation is higher for a firm-pair, this means that firm-pairs are more similar.

because it went bankrupt in 2001 after the Enron accounting scandal. There are 108,299 firms that are audited by a big 4 audit firm. First I exclude all firms that have less than 10 million dollar in assets. Furthermore I exclude all observations with a lack of data to calculate the discretionary and total accruals. The first year audit of a firm could not truly represent the 'audit style' of a company. Therefore I exclude the firm-year observation where a firm switched audit firm. Next, I exclude all firm-year observations that have less than twenty firms in any two-digit SIC in any given year.

To eliminate the effect of outliers I winsorize the variables at 1 percent and 99 percent. After all the variables are calculated, all firms are paired based on their industry-year in a way that is similar to that of Francis et al. (2014). Each firm is paired within their industry and year. The remaining firms all consist of firms in the period 2000-2014. Not every firm in that period has observations in all years. As firms are paired per year, this does not affect the result. The control variables that contain standard deviations are calculated with quarterly data. One interpolation is necessary in calculating the quarterly operating cash flow. The COMPUSTAT database only contains the cumulative cash flows of all the quarters. Therefore the differences of each quarter in yearly operating cash flow (OANCFY) provide the operating cash flow per quarter. The quarterly data will be merged with the yearly data based on the firm and the quarter of a fiscal year. All the differences in variables that are calculated between firms contain the absolute difference.

Table 1
Derivation of US Sample, 2000 - 2014

Firm-year observations obtained from Compustat North America	342,849
Firm-years that are from the US and have a big 4 audit firm minus holdings and firms with less than 10 million of assets.	106,242
Firm-years after excluding firm-years in which the firm switched audit firm, that lack data to calculate total and discretionary accruals and observations that do not have available data for the market value.	31,829
Firm-years that contain over 20 firms in the same 2-digit SIC code.	26,179
Two-digit SIC groups that have over 20 firms.	32
Number of firms	4,236
All firm-pair combinations for each industry-year	1,741,170
Firm-pairs after truncation of the control variables that lack data.	1,569,017

All data is obtained from Compustat North America.

5.5 Methodology UK

First I start with all the yearly observations of UK firms from the COMPUSTAT global database. 43,656 UK firms are available in COMPUSTAT global. There are certain items that are available in the COMPUSTAT North America database, but unavailable in the COMPUSTAT global database. Not all the items that are necessary for my research are available in the COMPUSTAT global database. The missing items are the market value of firms and the audit firm a company has.[12] The market value of each firm is obtained through DataStream and the data that provides the audit firm of each company is provided by the Audit Quality Review Team of the Financial Reporting Council. This data is hand-collected by the FRC and drawn from a number of publicly available sources. The data from the FRC (± 800 companies per year) is merged manually with COMPUSTAT based on the company name. The companies that are in the UK sample are all listed companies. This contains listed companies at the London Stock Exchange (LSE), but also those traded at Alternative Investment Market (AIM) or a Specialist Fund Market (SFM). The

[12] These items are shown in COMPUSTAT North America as MKVALT (Market Value) and AU (Audit firm).

companies that have a market capitalization less than £100 million and traded in an AIM are not in the sample. Those UK companies that are audited by a big 4 audit firm which is based in the Cayman Islands (36 companies), Ireland (9 companies) or Luxembourg (2 companies) are excluded. The companies that are audited by an audit firm from the Cayman Islands are mainly trusts and large private equity holdings. Based on the average currency rate between the pound and the dollar, all firms that have less than 7 million pounds of total assets will be excluded. As the data of the FRC is collected since 2005, the sample-period for UK firms is 2005-2014. Due to less firms in the UK, only firms with 10 or less firm-year observations in each two-digit SIC will be excluded from the sample.

Table 2
Derivation of UK sample, 2005-2014

Firm-year observations obtained from Compustat Global	507,690
Firm-years that are from the United Kingdom	43,656
Firm-years that have a big 4 audit firm, more than 7 million pounds of assets and are not a holding.	5,940
Firm-years after excluding firm-years in which the firm switched audit firm, that lack data to calculate total and discretionary accruals and observations that do not have available data for the market value.	2,394
Number of industries that contain over 10 firms in the same 2-digit SIC code.	14
Number of firms	285
All firm-pair combinations for each industry-year	11,664
Firm-pairs after truncation of the control variables that lack data.	6,238

Data is obtained from Compustat Global, Datastream and the FRC.

5.6 Conclusion

The research design and methodology is explained in this chapter. The financial statement comparability in this research will be measured by using the absolute difference in total and discretionary accruals. The calculation of discretionary accruals is conducted with a modified Jones (1991) model that controls for contemporaneous performance (Kothari et al., 2005). It is explained in the methodology how the final sample is derived. Due to lower data availability in the UK and the mergers of several databases, the total sample of the UK is relatively small compared to the US sample. However, the sample is still big and diverse enough to provide valid conclusions.

6. Results

6.1 Introduction

The literature study examined the impact of standards and the audit firm on financial statement comparability. The prediction is made that the effect of the audit firm on the financial statement comparability will be more severe when the accounting standards are principles-based. This chapter shows the results that are obtained by using the model previously explained. First the descriptive statistics of both the US and UK setting will be provided, second the findings of this research will be shown and lastly this chapter provides an analysis of the results.

6.2 Assumptions OLS regression

This section provides an overview of the assumptions of the Ordinary Least Square (OLS) regression model. Firstly, it is checked whether there is multicollinearity among the variables. Multicollinearity exists when two variables are almost nearly identical linear combinations of each other. Multicollinearity is tested with a variance inflation factor (vif) (see appendix table 10.3, 11.3, 12.3 & 13.3). The results show that there is no multicollinearity. To test heteroscedasticity the Cook and Weisberg test for heteroscedasticity will be done. The p-value of the Cook and Weisberg test is low, so this means that heterescedasticity exists (see appendix table 10.2, 11.2, 12.2 & 13.2). This means that the error terms do not have a constant variance. When the robust standard errors are added to the regression, the results remain similar. The normality assumption will be examined with the standardized normal probability. It is clear that there are problems concerning normality of the residuals when the Shapiro-Wilk W test is done. The Shapiro-Wilk W test rejects the null hypothesis that the residuals are normally distributed (see appendix table 10.1, 11.1, 12.1 & 13.1). A possible explanation for this is the large sample size used in my research. When a large sample has a small deviation from normality, this will cause a significant result. As shown in the appendix the histogram (figure 1.1, 2.1, 3.1 & 4.1) of the residuals does provide signs of a normal distribution.

6.3 Descriptive statistics US

Table 3 shows the descriptive statistics for the variables that are used in the US sample. In total there are 1,569,017 observations obtained over the 2000-2014 period. The descriptive statistics show that 27% of the paired firms have the same big 4 audit firm. The absolute difference in total accruals and

discretionary accruals are similar to the results of DeFranco et al. (2014). The control variables are generally as expected. An explanation of each control variable is provided in the appendix (table 9).

Table 3

Descriptive Statistics

Variable	Mean	STD	Min.	25%	Median	75%	Max.
Dependent Variables							
DTA	0.11	0.11	0.00	0.03	0.07	0.14	0.82
DDA	0.09	0.08	0.00	0.03	0.07	0.12	1.00
Test Variables							
SameBig4	0.27	0.45	0.00	0.00	0.00	1.00	1.00
Control Variables							
Mintacc	-0.13	0.11	-0.56	-0.17	-0.10	-0.06	0.26
Sizedif	1.98	1.52	0.00	0.77	1.65	2.85	8.82
MinSize	5.79	1.76	2.31	4.48	5.65	6.93	11.12
Leveragedif	0.29	0.26	0.00	0.10	0.22	0.40	1.51
MinLeverage	0.33	0.19	0.06	0.18	0.29	0.46	1.57
MarkettoBookdif	3.44	4.59	0.00	0.69	1.71	3.97	35.34
minMarkettoBook	1.33	2.90	-11.74	0.89	1.48	2.30	23.60
scaledOANCFdif	0.18	0.19	0.00	0.05	0.11	0.24	1.14
minscaledOANCF	-0.06	0.21	-0.71	-0.13	0.02	0.08	0.42
LOSSPROBdif	0.32	0.27	0.00	0.06	0.25	0.50	1.00
minLOSSPROB	0.17	0.23	0.00	0.00	0.06	0.25	1.00
SD_SALEdif	125.48	269.55	0.00	7.13	26.84	100.85	1588.45
minSD_SALE	26.06	84.84	0.03	2.44	6.58	18.77	1588.49
SD_OANCFdif	75.50	161.94	0.00	4.32	15.54	57.94	947.52
minSD_OANCF	16.31	52.07	0.11	2.18	4.73	12.09	947.69
SD_SALEGRdif	0.58	1.94	0.00	0.04	0.10	0.26	13.67
minSD_SALEGR	0.20	0.74	0.02	0.07	0.10	0.16	13.69

The table presents the descriptive statistics of all the variables that are used in the cross-sectional analyses of the US. All the variables are based on US firms in the 2000-2014 sample period. Explanation of the control variables is provided in the appendix. The statistics are based on 1,569,017 firm-pairs.

6.4 Descriptive statistics UK

Table 4 shows the descriptive statistics of the UK firms. The amount of firms that have the same big 4 audit firm is 28%. This is similar to the US. The mean of the differences in total and discretionary accruals is lower compared to the US sample. This suggests that the overall absolute difference in total

and discretionary accruals between paired firms is less in a UK setting compared to the US. The means and standard deviations of the control variables in general similar to the US sample.

Table 4

Descriptive Statistics

Variable	Mean	STD	Min.	25%	Median	75%	Max.
Dependent Variables							
DTA	0.07	0.07	0.00	0.02	0.05	0.10	0.48
DDA	0.06	0.05	0.00	0.02	0.04	0.08	0.36
Test Variables							
SameBig4	0.28	0.45	0.00	0.00	0.00	1.00	1.00
Control Variables							
MinTacc	-0.08	0.07	-0.33	-0.12	-0.07	-0.04	0.15
Sizedif	1.71	1.37	0.00	0.65	1.39	2.45	8.32
MinSize	6.30	1.63	2.44	5.12	5.99	7.51	11.17
Leveragedif	0.23	0.18	0.00	0.09	0.20	0.33	1.07
MinLeverage	0.44	0.18	0.11	0.30	0.45	0.57	1.10
MarkettoBookdif	2.93	3.86	0.00	0.60	1.54	3.44	30.92
minMarkettoBook	1.03	3.03	-13.93	0.63	1.30	2.01	17.61
scaledOANCFdif	0.10	0.09	0.00	0.03	0.08	0.14	0.60
minscaledOANCF	0.05	0.08	-0.21	0.02	0.06	0.10	0.39
LOSSPROBdif	0.16	0.21	0.00	0.00	0.06	0.25	1.00
minLOSSPROB	0.06	0.14	0.00	0.00	0.00	0.06	1.00
SD_SALEdif	85.17	210.86	0.01	7.02	21.82	59.52	2986.72
minSD_SALE	38.33	133.21	0.02	3.82	8.87	23.92	2991.43
SD_OANCFdif	49.84	154.63	0.00	2.40	8.52	25.09	2031.17
minSD_OANCF	20.57	91.25	0.16	1.91	3.81	9.38	2035.45
SD_SALEGRdif	0.29	1.98	0.00	0.02	0.06	0.15	31.70
minSD_SALEGR	0.15	0.85	0.02	0.05	0.08	0.11	31.75

The table presents the descriptive statistics of all the variables that are used in the cross-sectional analyses of the UK. All the variables are based on UK firms in the 2005-2014 sample period. Explanation of the control variables is provided in the appendix. The statistics are based on 6,238 firm-pairs.

6.5 Findings

The results of the effect on the differences in total and discretionary accruals in the US sample are provided in table 5.

Table 5
Results of Ordinary Least Squares tests US

	Expected sign	Difference Total Accruals	t-stat.	Difference Discretionary Accruals	t-stat.
SameBig4	-	-0.0003925	(3.00)**	-0.0004463	(3.60)**
Mintacc	-	-0.665	(1,175.81)**	-0.255	(477.98)**
Sizedif	+	-0.001	(18.57)**	-0.002	(39.76)**
MinSize	-	-0.001	(18.08)**	-0.002	(38.46)**
Leveragedif	+	0.007	(24.32)**	0.004	(16.01)**
MinLeverage	-	-0.013	(36.30)**	-0.008	(23.76)**
MarkettoBookdif	+	0.000	(15.18)**	0.000	(11.04)**
minMarkettoBook	-	0.000	(8.86)**	0.000	(4.88)**
scaledOANCFdif	+	-0.034	(54.19)**	0.125	(209.58)**
minscaledOANCF	-	-0.121	(195.79)**	-0.01	(17.96)**
LOSSPROBdif	+	-0.004	(17.19)**	-0.008	(36.96)**
minLOSSPROB	-	-0.015	(43.49)**	0.014	(41.00)**
SD_SALEdif	+	0.000	(6.42)**	0.000	(1.66)
minSD_SALE	-	0.000	(5.64)**	0.000	(8.45)**
SD_OANCFdif	+	0.000	(5.82)**	0.000	(1.47)
minSD_OANCF	-	0.000	(2.40)*	0.000	(3.32)**
SD_SALEGRdif	+	0.000	(4.75)**	-0.001	(17.03)**
minSD_SALEGR	-	0.001	(5.00)**	0.004	(22.89)**
_cons		0.034	(98.12)**	0.049	(152.14)**
Adjusted R^2		0.52		0.25	
N		1,569,017		1,569,017	

* p<0.05; **p<0.01

The table presents the results of the first regression that are related to the US sample. The difference in total accruals is the dependent variable and whether firms have the same big 4 audit firm is the independent variable. The variable SameBig4 is 1 when firm-pairs have the same big 4 audit firm and 0 when a firm-pair has a different big 4 audit firm. The definition of the control variables are provided in the appendix table 9. Table 14 in the appendix show the results when instead of the minimum value, the average value is used in the calculation of the control variables. The results remain similar.

Hypothesis 1 expects that firms who are audited by the same big 4 audit firm have more comparable financial statements. Table 5 shows that if the paired firms have the same big 4 audit firm, the absolute difference in total (discretionary) accruals are -0.0003925 (-0.0004463) less. Both results are statistically

significant (t-statistic = 3.00 and 3.60; p-value = 0.000 and 0.003). Francis et al. (2014) show that pairs with the same big 4 audit firm have -0.001 lower difference in total and discretionary accruals. Where my research shows coefficients of -0.0003925 and -0.0004463, the research of Francis et al. (2014) show -0.001 as coefficient. The control variables Mintacc, MinLeverage, and minscaledOANCF are all negative and significant. These variables are generally as expected and also consistent with the Francis et al. (2014). When the total accruals are low, the difference in total/discretionary accruals of both firms is less as well. Additionally, when the firm-pair has a higher minimum in debt-to-total assets ratio there is a lower difference in total and discretionary accruals. The results show that when these minimums are higher, the firm-pairs have less accruals. The results above show a (small) significant decrease in total/discretionary accrual differences between firms when firms have the same big 4 audit firm, so therefore the first hypothesis can be accepted. Although the absolute differences in size, scaledOANCFdif and LOSSPROBdif show a small significant contradictory result, the results are consistent with the results of Francis et al. (2014).

In line with the first hypothesis I examine the same relation in a UK setting. The results of the first hypothesis are shown in table 6. The results show that when the firm-pair has the same big 4 audit firm in a UK setting there are -0.0030842 (-0.0030401) less total (discretionary) accruals. The results are statistically significant (t-statistic = 2.68 and 2.75; p-value = 0.007 and 0.006). The results in the UK sample show that firm-pairs have a lower absolute difference in total and discretionary accruals when they have the same big 4 audit firm. These finding are in line with hypothesis 1.

Table 6

Results of Ordinary Least Squares tests UK

	Expected sign	Difference Total Accruals	t-stat.	Difference Discretionary Accruals	t-stat.
SameBig4	-	-0.0030842	(2.68)**	-0.0030401	(2.75)**
Mintacc	-	-0.695	(69.34)**	-0.255	(26.37)**
Sizedif	+	-0.001	(1.24)	-0.003	(5.88)**
MinSize	-	-0.003	(7.24)**	-0.001	(1.88)
Leveragedif	+	0.015	(4.35)**	0.007	(2.06)*
MinLeverage	-	-0.002	(0.65)	-0.006	(1.74)
MarkettoBookdif	+	0.001	(4.41)**	0.000	(0.26)
minMarkettoBook	-	0.001	(5.51)**	0.001	(3.16)**
scaledOANCFdif	+	-0.054	(6.59)**	0.116	(14.60)**
minscaledOANCF	-	-0.377	(36.91)**	-0.133	(13.48)**
LOSSPROBdif	+	-0.053	(18.19)**	-0.033	(11.74)**
minLOSSPROB	-	-0.099	(14.06)**	-0.029	(4.23)**
SD_SALEdif	+	0.000	(2.54)*	0.000	(2.08)*
minSD_SALE	-	0.000	(1.76)	0.000	(2.31)*
SD_OANCFdif	+	0.000	(3.22)**	0.000	(3.90)**
minSD_OANCF	-	0.000	(2.38)*	0.000	(1.23)
SD_SALEGRdif	+	-0.002	(6.27)**	-0.002	(5.75)**
minSD_SALEGR	-	0.021	(2.67)**	0.013	(1.76)
_cons		0.062	(17.33)**	0.046	(13.30)**
Adjusted R^2		0.51		0.24	
N		6,238		6,238	

* p<0.05; ** p<0.01

The table presents the results of the first regression that are related to the UK sample. The difference in total accruals is the dependent variable and whether firms have the same big 4 audit firm is the independent variable. The variable SameBig4 is 1 when firm-pairs have the same big 4 audit firm and 0 when a firm-pair has a different big 4 audit firm. The definition of the control variables are provided in the appendix table 9. Table 15 in the appendix show the results when instead of the minimum value, the average value is used in the calculation of the control variables. The results remain similar.

The second hypothesis assumes that the decrease of firms with the same big 4 audit firm in the absolute difference of total and discretionary accruals is less in a UK setting. The suggested reason behind this is that principles-based standards lead to more impact of the working-rules of the audit firm on the financial statements. The decrease of both the absolute difference in total accruals and discretionary

accruals is larger in the UK setting (table 7). These findings are in line with the prediction of hypothesis 2.

Table 7
Comparison of results US and UK

	Difference Total Accruals	t-stat.	Difference Discretionary Accruals	t-stat.
SameBig4 UK	-0.0030842	(2.68)**	-0.0030401	(2.75)**
SameBig4 US	-0.0003925	(3.00)**	-0.0004463	(3.60)**

* p<0.05; ** p<0.01

6.6 Robustness

Firstly, the method to measure discretionary accruals will be examined. Where Francis et al. (2014) use a Jones (1991) model controlling for contemporaneous performance, in this research a modified Jones (1991) model with controlling for contemporaneous performance is used. Both the results in the US sample and the UK sample are nearly identical and statistically significant. The intercept in the calculation of non-discretionary accruals is not included. When this intercept is included, it does not affect the results in the US sample, but it does have marginal effect for the UK sample. Taking into account the intercept parameter for the calculation of the non-discretionary accruals, the variable SameBig4 is in both regressions significant at a 5% p-value.

The audit style of an audit firm has an effect on the comparability between firms due to subjectivity in the earnings component of a firm. In order to be sure whether the same audit firm has no effect on the cash-flows, the same robustness test of Francis et al. (2014) will be done. Instead of the difference in accruals as the dependent variable the difference in operating cash flows will be taken as dependent variable. Both in the US and the UK the results are not significant (table 18). This means that the audit style of a big 4 audit firm has no effect on the difference in operating cash-flows of a firm-pair. As mentioned before, by pairing the firms on industry and fiscal year is controlled for economic shocks. To be sure that the financial crisis does not have an impact on the findings, I exclude all firm-year observations of fiscal-year 2007 and 2008. The results remain similar (table 19 & 20).

There is a difference in the number of industries in both samples. As shown in the derivation of the samples there are 32 different industries in the US sample and 15 different industries in the UK sample. Both samples have 12 industries in common. When I only keep the industries that are both in the US as

in the UK sample (12 industries), the results remain similar (table 16 & 17). An overview of all the industries in both the UK and the US sample is shown in the appendix (table 9).

6.7 Conclusion

Where the existing literature has mainly focused on the effect of accounting standards on the financial statement comparability, my research examines whether principles-based standards increases the effect of the audit firm on the comparability of financial statements. The results show that the absolute difference in total and discretionary accruals decreases when firms have the same big 4 audit firm. The results for the US setting in my research are nearly identical to the results found by Francis et al. (2014). Where Francis et al. (2014) show that the discretionary and total accruals are 0.001 lower when firms-pairs have the same big 4 audit firm, in my research this coefficient is slightly closer to zero. A possible explanation is the sample period. Francis et al. (2014) examined the data from 1987, taking into account more big audit firms that where active. Overall both results are in line with prior literature and research. In line with the predictions, the UK firms with the same audit firm show a lower difference in total and discretionary accruals compared to US firms. Assuming that principles-based standards have a negative effect on the financial statement comparability due to more permissible accounting policies and increasing potential for manipulation, the result show that the audit firm has more influence on the financial statement when the accounting standards are principles-based.

7. Summary and conclusion

7.1 Summary

This research aims to provide an answer as to whether a big 4 audit firm influences the financial statement comparability. Where Francis et al. (2014) show that firms that have the same big 4 audit firm have more comparable financial statements, my research examines whether this effect is larger in a UK setting. To enhance the efficiency and effectiveness of the audit, each audit firm implements working rules. In order to work efficiently, each audit firm has their own guidelines to interpret the accounting standards. Moreover, audit firms differ in their IT systems and they have their own quality and interpretation of the accounting/auditing standards. Where standard setters and regulators aim to make financial statements more comparable with uniform accounting standards and quality reviews of audit firms, there are still structural differences between audit firms. The working-rules of each separate audit firm is defined by Francis et al. (2014) as the 'audit style' of an audit firm. Due to the working-rules of an audit firm one could argue that the way to conduct an audit is systematically different among the four big audit firms. Moreover the working-rules of the audit firm increase the likelihood that there is consistency in the client-errors an audit firm detects.

Considering that US GAAP is relatively more based on rules and IFRS is relatively more based on principles, the assumption is made that IFRS provides more possibilities for the audit firm to apply professional judgment. This professional judgment results in more impact of the audit firm on the financial statements. Therefore the prediction in this research is made that a big 4 audit firm has a larger effect on the financial statement comparability in a principles-based setting. The research question that is investigated in this thesis is:

Does the 'audit style' of a Big 4 audit firm have a stronger effect on the financial statements comparability when the accounting standards are more principles-based instead of rules-based?

Based on the difference in total and discretionary accruals I calculated whether firm-pairs have comparable financial statements. In the regression, a dummy variable is used to determine whether a firm-pair, matched on industry-year, has the same big 4 audit firm. The findings show that firms with the same big 4 audit firm have more comparable financial statements. The effect of the same big 4 audit firm on the financial statement comparability is larger in the UK compared to the US. This is in line with the research question, which predicts a larger effect of the audit firm on the financial statement comparability when the accounting standards are principles-based standards. Although this research

expects that the principles-based accounting standards lead to a higher influence of the audit firm on financial statement comparability, it might be the case that the result is caused by other factors. Based on prior literature I suggest that factors might be the regulation in a country, litigation risk for an audit firm and the expertise of an audit firm.

7.2 Limitations

The effect of regulation, litigation risk and expertise of the audit firm on financial statement comparability is not investigated in this research. The potential effects of these factors could have an effect on the findings of my research.

The descriptive statistics show that firms in the same industry are more likely to have the same audit firm. This is in line with prior research, showing that audit firms are industry specialists. According to Neal and Riley (2004) an audit firm is an industry specialist when it has 1.2 times the inverse of the number of Big N auditors. So when there are 4 audit firms, an audit firm is an industry specialist when it has 30% (1.2* (1/4) = 0.3) market share in the industry. Although the mean in both the US and UK is lower than 30%, it might still be the case that there are industries in the sample that contain industry specialists.

Where the US contains a large sample, the sample of the UK is substantially smaller. Although the statistics are similar compared to the US sample, it might be that due to a lack of data availability the validity of the UK findings is lower. Moreover, the UK data is obtained from three different sources. The data that contains the big 4 audit firm of UK firms is provided by the FRC. As this data does not contain company identifiers, the data is matched manually based on company name. Even though most firms matched exactly, there were some data items where judgment was necessary. In case of doubt about the matching of the firms, the data items are not included in the sample.

7.3 Further research

This research shows that 'audit style' has an effect on the financial statement comparability. Where financial statement comparability is measured with earnings comparability, it might be the case that audit firms have consistency in auditing certain financial statement line items. Further research could examine whether there is consistency in accounting policy choices among firms with the same audit firm. Moreover, financial statement comparability in relation to other factors than accounting standards is not investigated extensively. The control variables in this research are based on the research of Francis

et al. (2014) and aim to capture economic fundamentals of firms. Further research could examine whether these control variables are effective and whether other control variables should be added to the model.

Prior literature also shows that country-specific items influence the comparability of financial statements between countries. To assess whether the assumption of this research holds, other countries that adopted IFRS could be investigated. Additionally, further research could elaborate on the question whether the audit style of an audit firm influences the quality of financial statements. This research does not examine whether principles-based or rules-based standards are higher quality standards. Further research could examine the relation of professional judgment versus strict guidelines. This could be done by taking into account whether two-firms with the same audit firm have higher quality financial statements when the accounting standards are principles-based.

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Appendices

Control variables

Table 8

Control variable	Definition
Mintacc	The lowest total accruals per firm-pair.
Sizedif	The (absolute) difference of size per firm-pair.
MinSize	The lowest size per firm-pair.
Leveragedif	Leverage is calculated with: total debt / total assets. Leveragedif is the (absolute) difference of leverage-ratio per firm-pair.
MinLeverage	The lowest leverage-ratio per firm-pair.
MarkettoBookdif	Market-to-book ratio is calculated with: market value / equity. MarkettoBookdif is the (absolute) difference of market-to-book ratio per firm-pair.
minMarkettoBook	The lowest market-to-book ratio per firm-pair.
scaledOANCFdif	Scaled operating cash-flows are calculated with: operating cash flow / lagged total assets. ScaledOANCFdif is the (absolute) difference of scaled operating cash-flows per firm-pair.
minscaledOANCF	The lowest scaled operating cash-flow per firm-pair.
LOSSPROBdif	Loss probability is calculated as the probability that the firm reported a loss (negative net income before extraordinary items) during the last 16 quarters. LOSSPROBdif is the (absolute) difference in loss probability per firm-pair.
minLOSSPROB	The lowest loss probability per firm-pair.
SD_SALEdif	The standard deviation of sales based on the sales of the last 16 quarters. SD_SALEdif is the (absolute) difference of the standard deviation of sales per firm-pair.
minSD_SALE	The lowest standard deviation of sales per firm-pair.
SD_OANCFdif	The standard deviation of operating cash flow is based on the operating cash flow of the last 16 quarters. SD_OANCFdif is the (absolute) difference of the standard deviation of operating cash flow per firm-pair.
minSD_OANCF	The lowest standard deviation of operating cash flow per firm-pair.
SD_SALEGRdif	The standard deviation of sales growth is based on the sales growth of the last 16 quarters. SD_SALEGRdif is the (absolute) difference of the standard deviation of sales growth per firm-pair.
minSD_SALEGR	The lowest standard deviation of sales growth per firm-pair.

Industries

Table 9

Industries represented in samples (industry-names retrieved from website North Carolina State University).

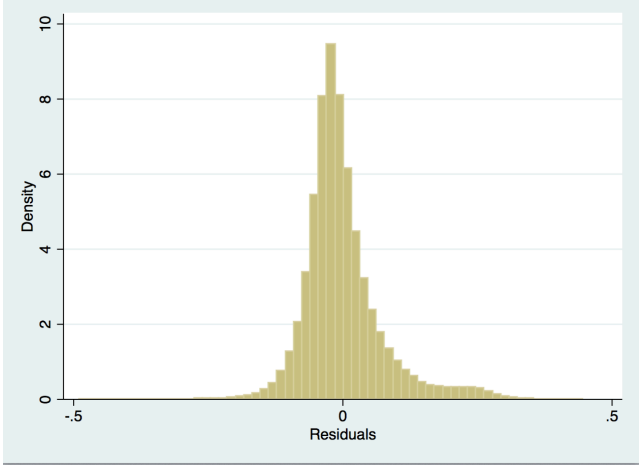
First 2 digit SIC code	Industry name	UK sample	US sample
10	Metal, Mining	✔	
13	Oil & Gas Extraction	✔	✔
15	General Building Contractors	✔	
20	Food & Kindred Products	✔	✔
23	Textile Mill Products		✔
26	Paper & Allied Products		✔
27	Printing & Publishing	✔	✔
28	Chemical & Allied Products	✔	✔
30	Rubber & Miscellaneous Plastics Products		✔
33	Primary Metal Industries		✔
34	Fabricated Metal Products		✔
35	Industrial Machinery & Equipment		✔
36	Electronic & Other Electric Equipment	✔	✔
37	Transportation Equipment		✔
38	Instruments & Related Products	✔	✔
39	Miscellaneous Manufacturing Industries		✔
42	Trucking & Warehousing		✔
45	Transportation by Air		✔
48	Communications	✔	✔
49	Electric, Gas, & Sanitary Services	✔	✔
50	Wholesale Trade - Durable Goods	✔	✔
51	Wholesale Trade - Nondurable Goods		✔
53	General Merchandise Stores		✔
56	Apparel & Accessory Stores		✔
58	Eating & Drinking Places	✔	✔
59	Miscellaneous Retail		✔
62	Security & Commodity Brokers		✔
63	Insurance Carriers		✔
65	Real Estate		✔
67	Holding & Other Investment		✔
73	Business Services	✔	✔
79	Amusement & Recreation		✔
80	Health Services		✔
87	Engineering & Management	✔	✔

OLS assumptions

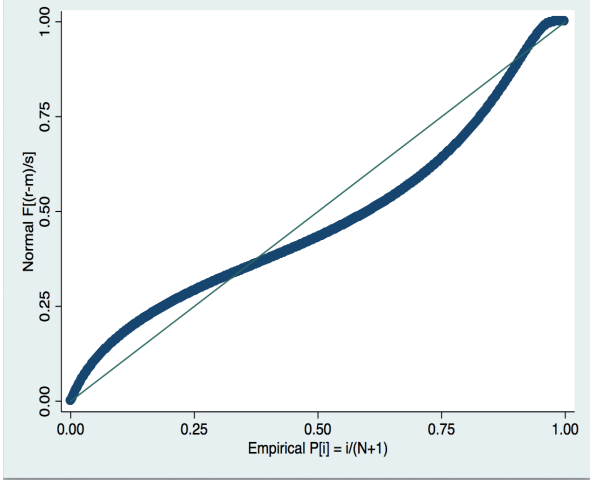
Regression with difference in total accruals in US sample.

Normality of residuals

Histogram – Figure 1.1



P-P Plot – Figure 1.2



Shapiro-Wilk W test for normality – Table 10.1

Variable	Obs	W	V	Z	Prob>z
Residuals	1569017	0.90258	13000	26.783	0.000

Heteroscedasticity – Table 10.2

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

H0: Constant variance

Variables: fitted values of DTA

Chi2(1)	140769.58
Prob>Chi2	0.000

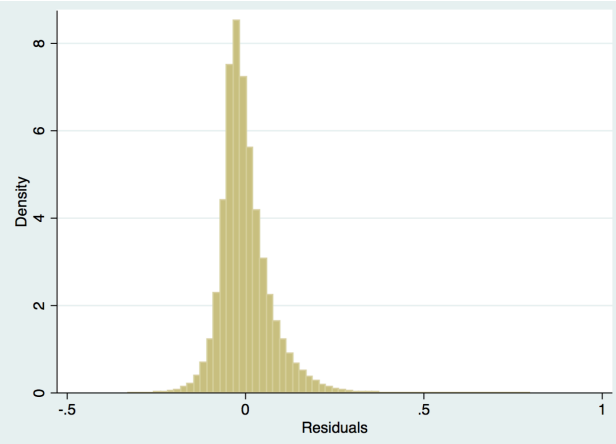
Multicolinearity – Table 10.3

Variable	VIF	1/VIF
minscaledO~F	4.27	0.234302
scaledOANC~f	3.49	0.286276
SD_OANCFdif	3.41	0.293102
SD_SALEdif	3.32	0.300847
minSD_OANCF	3.26	0.306506
minSD_SALE	3.25	0.307855
MinSize	1.66	0.601944
Sizedif	1.64	0.610589
minLOSSPROB	1.62	0.615865
Leveragedif	1.39	0.719711
MarkettoBo~f	1.33	0.75037
MinLeverage	1.31	0.761152
LOSSPROBdif	1.31	0.764889
minMarkett~k	1.29	0.772463
SD_SALEGRdif	1.15	0.871034
minSD_SALEGR	1.12	0.894149
Mintacc	1.29	0.918962
dummy	1.15	0.998451
Mean VIF	2.05	

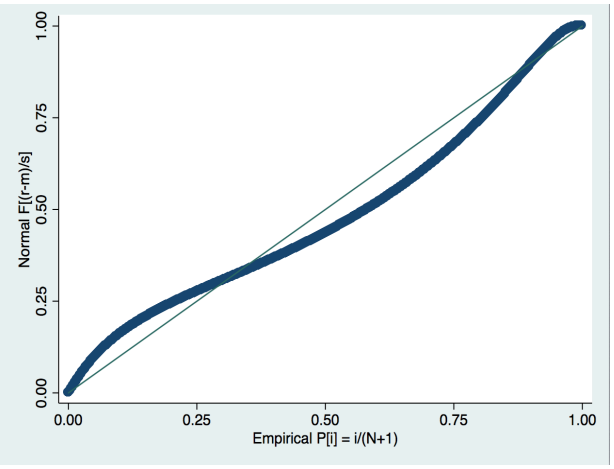
Regression with difference in discretionary accruals in US sample.

Normality of residuals

Histogram – Figure 2.1



P-P Plot – Figure 2.2



Shapiro-Wilk W test for normality – Table 11.1

Variable	Obs	W	V	z	Prob>z
Residuals	1569017	0.9348	8402.094	25.644	0.000

Heteroscedasticity – Table 11.2

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

H0: Constant variance

Variables: fitted values of DDA

Chi2(1)	542123.62
Prob>Chi2	0.000

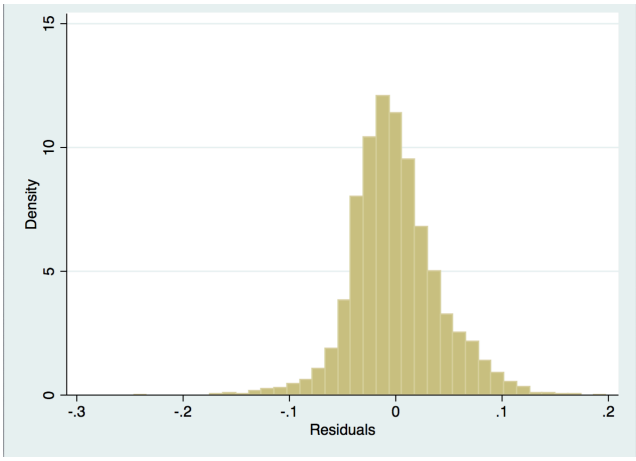
Multicolinearity – Table 11.3

Variable	VIF	1/VIF
minscaledO~F	4.27	0.234302
scaledOANC~f	3.49	0.286276
SD_OANCFdif	3.41	0.293102
SD_SALEdif	3.32	0.300847
minSD_OANCF	3.26	0.306506
minSD_SALE	3.25	0.307855
MinSize	1.66	0.601944
Sizedif	1.64	0.610589
minLOSSPROB	1.62	0.615865
Leveragedif	1.39	0.719711
MarkettoBo~f	1.33	0.75037
MinLeverage	1.31	0.761152
LOSSPROBdif	1.31	0.764889
minMarkett~k	1.29	0.772463
SD_SALEGRdif	1.15	0.871034
minSD_SALEGR	1.12	0.894149
Mintacc	1.29	0.918962
dummy	1.15	0.998451
Mean VIF	2.05	

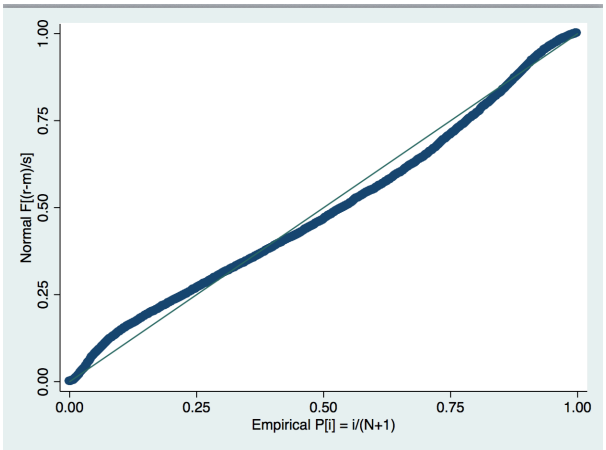
Regression with difference in total accruals in UK sample.

Normality of residuals

Histogram – Figure 3.1



P-P Plot – Figure 3.2



Shapiro-Wilk W test for normality – Table 12.1

Variable	Obs	W	V	z	Prob>z
Residuals	6238	0.97982	66.532	11.088	0.000

Heteroscedasticity – Table 12.2

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

H0: Constant variance

Variables: fitted values of DTA

Chi2(1)	1455.24
Prob>Chi2	0.000

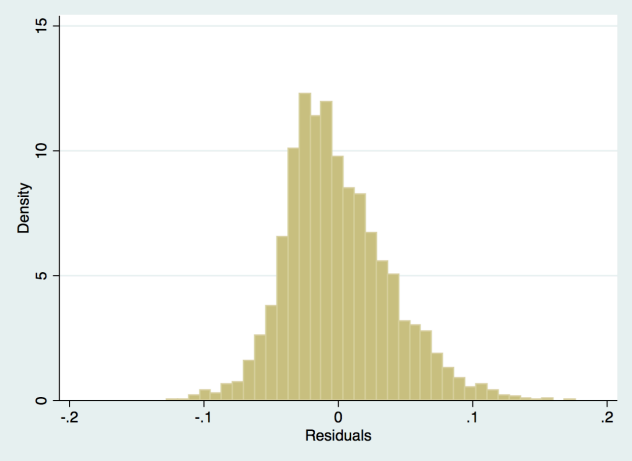
Multicolinearity – Table 12.3

Variable	VIF	1/VIF
SD_OANCFdif	3.57	0.280051
SD_SALEdif	3.45	0.289643
minSD_SALE	3.35	0.29887
minSD_OANCF	3.09	0.323903
minscaledO~F	2.67	0.375087
scaledOANC~f	1.94	0.516756
MarkettoBo~f	1.73	0.577644
Mintacc	1.65	0.604429
Sizedif	1.58	0.633099
LOSSPROBdif	1.55	0.645215
minMarkett~k	1.55	0.646302
Leveragedif	1.54	0.649078
MinLeverage	1.54	0.649333
minLOSSPROB	1.38	0.726743
MinSize	1.36	0.736786
minSD_SALEGR	1.25	0.797268
SD_SALEGRdif	1.11	0.898312
dummy	1.01	0.993142
Mean VIF	1.96	

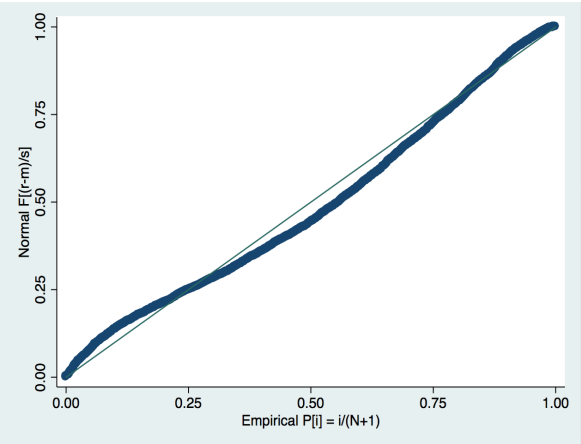
Regression with difference in discretionary accruals in UK sample.

Normality of residuals

Histogram – Figure 4.1



P-P Plot – Figure 4.2



Shapiro-Wilk W test for normality – Table 13.1

Variable	Obs	W	V	z	Prob>z
Residuals	6238	0.97954	67.448	11.125	0.000

Heteroscedasticity – Table 13.2

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

H0: Constant variance

Variables: fitted values of DDA

Chi2(1)	1264.43
Prob>Chi2	0.000

Multicolinearity – Table 13.3

Variable	VIF	1/VIF
SD_OANCFdif	3.57	0.280051
SD_SALEdif	3.45	0.289643
minSD_SALE	3.35	0.29887
minSD_OANCF	3.09	0.323903
minscaledO~F	2.67	0.375087
scaledOANC~f	1.94	0.516756
MarkettoBo~f	1.73	0.577644
Mintacc	1.65	0.604429
Sizedif	1.58	0.633099
LOSSPROBdif	1.55	0.645215
minMarkett~k	1.55	0.646302
Leveragedif	1.54	0.649078
MinLeverage	1.54	0.649333
minLOSSPROB	1.38	0.726743
MinSize	1.36	0.736786
minSD_SALEGR	1.25	0.797268
SD_SALEGRdif	1.11	0.898312
dummy	1.01	0.993142
Mean VIF	1.96	

Change in calculation of control variables

Table 14 and table 15 show the results of the regressions in both the US and UK. Instead of the minimum value, table 14 and 15 show what the result is when the average value is used.

Table 14
Results of Ordinary Least Squares tests US

	Difference Total Accruals	t-stat.	Difference Discretionary Accruals	t-stat.
SameBig4	0.0003649	(2.11)*	0.0003209	(2.43)*
Avetacc	-0.332	(335.73)**	-0.034	(45.21)**
Sizedif	-0.001	(12.40)**	-0.001	(29.18)**
AveSize	-0.01	(18.08)**	-0.009	(18.08)**
Leveragedif	0.019	(53.07)**	0.009	(33.39)**
AveLeverage	0.021	(44.04)**	0.015	(42.01)**
MarkettoBookdif	0.000	(11.80)**	0.000	(12.58)**
AveMarkettoBook	0.000	(2.32)*	0.000	(4.74)**
scaledOANCFdif	0.069	(121.07)**	0.149	(342.27)**
AvescaledOANCF	-0.073	(88.66)**	0.027	(42.67)**
LOSSPROBdif	-0.003	(9.30)**	-0.018	(71.25)**
AveLOSSPROB	0.013	(9.30)**	0.025	(71.25)**
SD_SALEdif	0.000	(6.42)**	0.000	(6.42)**
AveSD_SALE	0.000	(0.43)	0.000	(0.92)
SD_OANCFdif	0.000	(0.43)	0.000	(2.04)*
AveSD_OANCF	0.000	(6.46)**	0.000	(11.08)**
SD_SALEGRdif	-0.001	(8.80)**	-0.003	(27.51)**
AveSD_SALEGR	0.003	(11.92)**	0.004	(25.30)**
_cons	0.114	(204.44)**	0.104	(245.25)**
Adjusted R^2	0.16		0.15	
N	1,569,017		1,569,017	

* p<0.05; ** p<0.01

Table 15
Results of Ordinary Least Squares tests UK

	Difference Total Accruals	t-stat.	Difference Discretionary Accruals	t-stat.
SameBig4	-0.0048720	(3.23)**	-0.0036175	(3.11)**
Avetacc	-0.239	(13.86)**	-0.032	(2.39)*
Sizedif	-0.001	(1.53)	-0.003	(5.60)**
AveSize	-0.004	(18.08)**	-0.002	(18.08)**
Leveragedif	0.019	(4.57)**	0.01	(3.12)**
AveLeverage	0.044	(8.73)**	0.015	(3.82)**
MarkettoBookdif	0.000	(0.95)	-0.001	(3.57)**
AveMarkettoBook	-0.001	(2.43)*	0.000	(0.97)
scaledOANCFdif	0.203	(23.00)**	0.206	(30.13)**
AvescaledOANCF	-0.111	(7.52)**	-0.004	(0.39)
LOSSPROBdif	-0.018	(3.30)**	-0.025	(5.86)**
AveLOSSPROB	-0.002	(3.30)**	0.016	(5.86)**
SD_SALEdif	0.000	(6.42)**	0.000	(6.42)**
AveSD_SALE	0.000	(1.41)	0.000	(2.30)*
SD_OANCFdif	0.000	(0.81)	0.000	(0.93)
AveSD_OANCF	0.000	(2.04)*	0.000	(1.72)
SD_SALEGRdif	-0.026	(5.05)**	-0.014	(3.42)**
AveSD_SALEGR	0.051	(4.96)**	0.025	(3.18)**
_cons	0.05	(8.58)**	0.046	(10.22)**
Adjusted R^2	0.16		0.16	
N	6,238		6,238	

* p<0.05; ** <0.01

Robustness; same industries

Table 16 and table 17 show the results when only the industries are taken that are represented in both the US and the UK sample [13].

Table 16
Results of Ordinary Least Squares tests US

	Difference Total Accruals	t-stat.	Difference Discretionary Accruals	t-stat.
SameBig4	0.0003303	(2.29)*	0.0002786	(2.04)*
Mintacc	-0.658	(1,072.55)**	-0.257	(441.92)**
Sizedif	-0.003	(40.96)**	-0.005	(78.31)**
MinSize	-0.004	(55.15)**	-0.007	(100.84)**
Leveragedif	0.008	(27.87)**	0.007	(25.32)**
MinLeverage	-0.008	(20.26)**	0.002	(5.46)**
MarkettoBookdif	0.000	(14.70)**	0.000	(7.18)**
MinMarkettoBook	0.000	(10.71)**	0.000	(0.63)
scaledOANCFdif	-0.029	(43.46)**	0.118	(185.72)**
MinscaledOANCF	-0.107	(161.58)**	-0.002	(3.75)**
LOSSPROBdif	-0.003	(11.41)**	-0.009	(34.96)**
MinLOSSPROB	-0.014	(11.41)**	0.009	(23.91)**
SD_SALEdif	0.000	(2.10)*	0.000	(2.65)**
MinSD_SALE	0.000	(2.73)**	0.000	(0.33)
SD_OANCFdif	0.000	(17.30)**	0.000	(22.21)**
MinSD_OANCF	0.000	(8.78)**	0.000	(11.29)**
SD_SALEGRdif	0.000	(2.28)*	0.000	(13.29)**
MinSD_SALEGR	0.001	(4.19)**	0.003	(18.88)**
_cons	0.047	(102.38)**	0.076	(172.57)**
Adjusted R^2	0.51		0.25	
N	1,346,461		1,346,461	

* p<0.05; ** <0.01

[13] Those are industries with the following 2-digit SIC codes: 13, 20, 27, 28, 36, 38, 48, 49, 50, 58, 73 and 87.

Table 17
Results of Ordinary Least Squares tests UK

	Difference Total Accruals	t-stat.	Difference Discretionary Accruals	t-stat.
SameBig4	-0.0033706	(2.96)**	-0.0025398	(2.25)*
Mintacc	-0.730	(52.19)**	-0.276	(20.16)**
Sizedif	-0.002	(3.12)**	-0.003	(5.62)**
MinSize	-0.002	(3.21)**	-0.001	(2.36)*
Leveragedif	0.020	(4.89)**	0.010	(2.74)**
MinLeverage	0.002	(0.37)	-0.004	(1.15)
MarkettoBookdif	0.001	(4.48)**	0.000	(0.31)
MinMarkettoBook	0.002	(5.72)**	0.001	(2.90)**
scaledOANCFdif	-0.070	(7.27)**	0.107	(10.49)**
MinscaledOANCF	-0.383	(29.86)**	-0.143	(11.70)**
LOSSPROBdif	-0.054	(16.94)**	-0.036	(11.42)**
MinLOSSPROB	-0.096	(16.94)**	-0.032	(3.38)**
SD_SALEdif	0.000	(4.26)**	0.000	(2.07)*
MinSD_SALE	0.000	(3.63)**	0.000	(3.72)**
SD_OANCFdif	0.000	(4.39)**	0.000	(4.20)**
MinSD_OANCF	0.000	(3.68)**	0.000	(2.75)**
SD_SALEGRdif	-0.002	(5.55)**	-0.002	(5.56)**
MinSD_SALEGR	0.082	(5.94)**	0.049	(4.09)**
_cons	0.048	(11.01)**	0.046	(10.36)**
Adjusted R^2	0.54		0.26	
N	5,895		5,895	

* p<0.05; ** <0.01

Robustness; operating cash flow as dependent variable

Table 18 shows the result of the regressions where operating cash flow is the dependent variable.

Table 18
Results of Ordinary Least Squares tests

	Coefficient difference operating cash flow US	t-stat.	Coefficient difference operating cash flow UK	t-stat.
SameBig4	3.80	(1.37)	15.93	(0.87)
DTA	-622.21	(25.97)**	-1005.42	(4.47)**
DDA	11.90	(0.45)	463.69	(1.77)
Mintacc	-293.99	(11.62)**	-927.98	(4.54)**
Mindacc	-1072.08	(36.28)**	-511.96	(2.31)*
Sizedif	-81.60	(68.37)**	90.40	(10.69)**
MinSize	-98.29	(78.12)**	15.30	(1.64)
Leveragedif	-315.58	(54.50)**	-90.28	(1.61)
MinLeverage	-633.93	(83.16)**	-170.05	(2.85)**
MarkettoBookdif	14.23	(46.15)**	1.88	(0.68)
minMarkettoBook	2.40	(4.80)**	5.21	(1.51)
SD_SALEdif	2.37	(283.29)**	1.04	(14.94)**
minSD_SALE	-0.81	(21.02)**	0.31	(1.17)
SD_OANCFdif	8.55	(598.29)**	8.87	(93.73)**
minSD_OANCF	7.02	(106.92)**	1.25	(3.33)**
SD_SALEGRdif	6.12	(9.26)**	0.42	(0.08)
minSD_SALEGR	-84.11	(22.94)**	-402.09	(3.38)**
_cons	532.29	(65.78)**	-208.70	(3.21)**
Adjusted R^2	0.60		0.88	
N	1,578,786		6,262	

* p<0.05; **p<0.01

Robustness; financial crisis

Table 19

Results of Ordinary Least Squares tests US

	Difference Total Accruals	t-stat.	Difference Discretionary Accruals	t-stat.
SameBig4	0.0004924	(3.51)**	0.0004447	(3.35)**
Mintacc	-0.657	(1,073.78)**	-0.259	(448.26)**
Sizedif	-0.001	(19.99)**	-0.002	(37.97)**
MinSize	-0.001	(18.50)**	-0.002	(37.23)**
Leveragedif	0.008	(26.16)**	0.004	(14.00)**
MinLeverage	-0.012	(31.64)**	-0.007	(20.76)**
MarkettoBookdif	0.000	(17.15)**	0.000	(12.22)**
MinMarkettoBook	0.000	(10.92)**	0.000	(2.05)*
scaledOANCFdif	-0.035	(52.62)**	0.123	(193.65)**
MinscaledOANCF	-0.125	(189.37)**	-0.011	(17.93)**
LOSSPROBdif	-0.004	(17.07)**	-0.009	(35.19)**
MinLOSSPROB	-0.016	(17.07)**	0.012	(34.36)**
SD_SALEdif	0.000	(5.87)**	0.000	(0.94)
MinSD_SALE	0.000	(5.00)**	0.000	(6.70)**
SD_OANCFdif	0.000	(5.81)**	0.000	(0.48)
minSD_OANCF	0.000	(5.01)**	0.000	(5.95)**
SD_SALEGRdif	0.000	(0.19)	-0.001	(20.15)**
minSD_SALEGR	0.000	(1.55)	0.004	(20.99)**
_cons	0.035	(96.11)**	0.049	(144.66)**
Adjusted R^2	0.51		0.25	
N	1,379,854		1,379,854	

* p<0.05; ** <0.01

Table 20

Results of Ordinary Least Squares tests UK

	Difference Total Accruals	t-stat.	Difference Discretionary Accruals	t-stat.
SameBig4	-0.0034141	(2.73)**	-0.0035796	(3.02)**
Mintacc	-0.684	(41.80)**	-0.274	(19.16)**
Sizedif	-0.003	(4.98)**	-0.004	(6.71)**
MinSize	-0.003	(3.96)**	-0.003	(4.36)**
Leveragedif	0.021	(4.90)**	0.008	(2.19)*
MinLeverage	0.004	(0.86)	-0.002	(0.44)
MarkettoBookdif	0.001	(3.23)**	0.000	(0.64)
MinMarkettoBook	0.001	(3.98)**	0.001	(2.78)**
scaledOANCFdif	-0.063	(5.53)**	0.105	(9.21)**
MinscaledOANCF	-0.379	(25.91)**	-0.149	(11.30)**
LOSSPROBdif	-0.056	(16.32)**	-0.038	(11.75)**
MinLOSSPROB	-0.104	(16.32)**	-0.038	(4.08)**
SD_SALEdif	0.000	(3.02)**	0.000	(1.26)
MinSD_SALE	0.000	(2.28)*	0.000	(2.19)*
SD_OANCFdif	0.000	(3.72)**	0.000	(3.58)**
minSD_OANCF	0.000	(2.52)*	0.000	(2.07)*
SD_SALEGRdif	-0.003	(12.13)**	-0.001	(4.43)**
minSD_SALEGR	0.024	(1.33)	0.006	(0.61)
_cons	0.062	(11.98)**	0.058	(12.75)**
Adjusted R^2	0.49		0.25	
N	5,290		5,290	

* p<0.05; ** <0.01

Pearson correlation matrix UK

Table 21

UK Sample	DDA	DTA	SameBig4	Mintacc	Sizedif	MinSize	Leveragedif	MinLeverage	MarkettoBookdif	minMarkettoBook	scaledOANCFdif	minscaledOANCF	LOSSPROBdif	minLOSSPROB	SD_SALEdif	minSD_SALE	SD_OANCFdif	minSD_OANCF	SD_SALEGRdif	minSD_SALEGR
DDA	1.00																			
DTA	0.61	1.00																		
SameBig4	-0.03	-0.03	1.00																	
Mintacc	-0.34	-0.60	0.02	1.00																
Sizedif	-0.04	-0.01	0.02	0.00	1.00															
MinSize	-0.10	-0.11	0.02	0.08	-0.34	1.00														
Leveragedif	0.05	0.11	-0.01	-0.06	0.12	-0.11	1.00													
MinLeverage	-0.05	0.02	0.03	-0.04	0.01	0.23	-0.36	1.00												
MarkettoBookdif	0.03	0.08	0.00	-0.09	0.05	-0.03	0.30	0.16	1.00											
minMarkettoBook	0.00	-0.09	0.00	0.12	0.03	-0.05	-0.26	-0.14	-0.53	1.00										
scaledOANCFdif	0.37	0.30	0.02	-0.23	0.10	-0.23	0.08	-0.16	0.15	0.03	1.00									
minscaledOANCF	-0.15	-0.16	-0.04	-0.25	-0.06	0.13	-0.12	0.07	0.03	0.06	-0.47	1.00								
LOSSPROBdif	0.06	0.11	0.03	-0.09	0.13	-0.23	0.18	-0.17	0.04	-0.05	0.34	-0.50	1.00							
minLOSSPROB	0.06	0.09	0.00	-0.13	-0.01	-0.09	0.09	-0.13	-0.03	-0.07	0.04	-0.29	0.11	1.00						
SD_SALEdif	-0.05	-0.06	0.00	0.03	0.46	0.26	0.01	0.08	-0.02	0.02	-0.01	0.03	0.00	-0.04	1.00					
minSD_SALE	-0.05	-0.05	0.02	0.02	-0.12	0.54	-0.06	0.12	-0.03	-0.01	-0.08	0.05	-0.07	-0.03	0.29	1.00				
SD_OANCFdif	-0.02	-0.05	0.01	0.01	0.52	0.18	0.03	0.03	0.02	0.00	0.03	0.04	0.04	-0.03	0.83	0.22	1.00			
minSD_OANCF	-0.04	-0.04	0.01	0.02	-0.10	0.48	-0.04	0.08	0.00	-0.03	-0.06	0.05	-0.05	-0.01	0.25	0.82	0.20	1.00		
SD_SALEGRdif	0.02	0.07	0.01	-0.10	0.00	-0.02	0.18	-0.06	-0.01	-0.04	0.13	-0.18	0.14	0.11	0.00	-0.01	-0.01	-0.01	1.00	
minSD_SALEGR	0.08	0.10	0.02	-0.11	-0.04	-0.02	0.04	-0.20	-0.07	0.00	0.11	-0.15	0.13	0.34	0.02	0.09	-0.03	0.04	0.18	1.00

Pearson correlation matrix US

Table 22

US Sample	DDA	DTA	SameBig4	Mintacc	Sizedif	MinSize	Leveragedif	MinLeverage	MarkettoBookdif	minMarkettoBook	scaledOANCFdif	minscaledOANCF	LOSSPROBdif	minLOSSPROB	SD_SALEdif	minSD_SALE	SD_OANCFdif	minSD_OANCF	SD_SALEGRdif	minSD_SALEGR
DDA	1.00																			
DTA	0.70	1.00																		
SameBig4	0.00	0.00	1.00																	
Mintacc	-0.40	-0.70	0.00	1.00																
Sizedif	0.01	0.01	-0.01	0.00	1.00															
MinSize	-0.23	-0.22	0.01	0.17	-0.34	1.00														
Leveragedif	0.11	0.14	0.00	-0.13	0.07	-0.13	1.00													
MinLeverage	-0.05	-0.02	0.00	-0.03	0.04	0.32	-0.20	1.00												
MarkettoBookdif	0.12	0.11	0.01	-0.11	0.05	-0.09	0.32	0.16	1.00											
minMarkettoBook	-0.05	-0.07	0.00	0.08	0.02	0.05	-0.37	-0.12	-0.34	1.00										
scaledOANCFdif	0.35	0.23	0.01	-0.15	0.18	-0.36	0.13	-0.10	0.23	-0.02	1.00									
minscaledOANCF	-0.30	-0.25	-0.02	0.12	-0.11	0.44	-0.16	0.06	-0.19	0.08	-0.80	1.00								
LOSSPROBdif	0.10	0.10	-0.01	-0.08	0.17	-0.24	0.11	-0.04	0.11	-0.04	0.34	-0.32	1.00							
minLOSSPROB	0.16	0.17	0.03	-0.16	-0.10	-0.31	0.14	-0.04	0.11	-0.08	0.12	-0.39	-0.16	1.00						
SD_SALEdif	-0.07	-0.07	-0.01	0.06	0.48	0.25	-0.01	0.16	0.00	0.03	-0.05	0.10	-0.03	-0.16	1.00					
minSD_SALE	-0.11	-0.10	0.01	0.09	-0.14	0.54	-0.09	0.24	-0.04	0.03	-0.15	0.17	-0.14	-0.13	0.19	1.00				
SD_OANCFdif	-0.07	-0.07	0.00	0.07	0.50	0.25	-0.01	0.17	0.00	0.04	-0.04	0.09	-0.02	-0.15	0.83	0.21	1.00			
minSD_OANCF	-0.10	-0.09	0.01	0.08	-0.13	0.55	-0.08	0.25	-0.03	0.02	-0.13	0.15	-0.12	-0.12	0.21	0.82	0.19	1.00		
SD_SALEGRdif	0.09	0.10	0.01	-0.05	0.05	-0.14	0.09	0.00	0.13	-0.02	0.25	-0.33	0.12	0.18	-0.02	-0.05	-0.02	-0.04	1.00	
minSD_SALEGR	0.08	0.08	0.02	-0.05	-0.04	-0.11	0.06	-0.02	0.07	-0.02	0.09	-0.23	-0.01	0.24	-0.04	-0.02	-0.04	-0.02	0.17	1.00

Summary table

Summary table of the most relevant articles.				
Author(s)	Object of study	Sample	Research Methodology	Outcome
Brochet, Jagolinzer and Riedl (2013)	Whether the adoption of IFRS lead to more comparable financial statements due to less opportunities for investors to benefit from inside information.	663 firms with 2616 firm-year observations.	Archival study	Adoption of IFRS leads to improved financial statement comparability by reducing the ability for investors to benefit from private information.
Lang, Maffett and Owens (2010)	Effect of mandatory IFRS adoption on the financial statement comparability in a cross-country setting	260561 firm-year observations.	Archival study	The mandatory adoption of IFRS leads to an increase in the comovement of earnings and a decrease in accounting comparability in cross-country setting. Earnings comovement is negatively associated with forecast accuracy in a cross-country setting and the accounting comparability measure of DeFranco et al. (2011) is positively associated with analyst coverage.
Becker, DeFond, Jiambalvo and Subramanyam (1998)	The effect of the size of the audit firm on the accruals	10379 Big Six firm-years and 2179 non-Big Six firm-years.	Archival study	The discretionary accruals are greater for firms that have a non-Big Six audit firm than a Big Six audit firm.
Francis, Pinnuck and Watanabe (2014)	The effect of audit style on the financial statement comparability.	6044 US firms	Archival study	The authors found that the audit style has an influence on the financial statement comparability. When firms have the same big 4 audit firm, the financial statement are more comparable.