



# **Effect of mandatory audit firm rotation on client disclosure quality: Evidence from Europe**

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## **Abstract**

This study investigates the association between Mandatory Audit Firm Rotation (MAFR) and client firm Disclosure Quality (DQ), by focusing on European companies for the period 2012-2016. Based on previous studies it is hypothesized that the DQ will increase after the auditor rotation. Also, the DQ will increase for firms switching to Big4 auditors and more specifically, industry specialist auditors. Two different measures for DQ are used; Disaggregation Quality Score (DisQ) and Discretionary Accruals (DA). The results of this study show that in general, evidence is mixed. All of the hypotheses are rejected. However, the results show that there is an indication of the association between MAFR and DQ. An auditor switch under MAFR shows in general in a short time period negative association with DQ. There is not enough support for the assumptions that hiring Big4 audit firm or hiring an industry specialist auditor can enhance the client firm's DQ. Although indications are provided, results are mainly insignificant. The robustness test shows that there may be country-specific characteristics and omitted variables which can influence the results.

*Keywords: Audit firm rotations; Disclosure Quality; Industry specialist auditor.*

## Table of Contents

Abstract .....	1
Foreword and Acknowledgements: .....	3
Chapter 1: Introduction .....	4
1.1 Background .....	4
1.2 Implementation of mandatory audit firm rotation (MAFR) in Europe .....	5
1.3 Motivation and contribution.....	6
1.4 Research question .....	8
1.5 Methodology .....	8
1.6 Structure of this thesis.....	9
Chapter 2: Theory, Literature and Hypothesis Development.....	10
2.1 Theoretical Background .....	10
2.2 Mandatory Auditor Rotation (MAFR/ MAPR).....	15
2.3 Auditor Rotation and Audit Quality .....	16
2.4 Auditor’s Industrial Specialization and Audit Quality .....	20
2.5 Disclosure Quality and Hypotheses development.....	21
2.6 Conclusion .....	22
Chapter 3: Research Methodology.....	24
3.1 Sample Selection.....	24
3.2 Measurement of Variables.....	25
3.3 Conclusion .....	35
Chapter 4: Results and Analysis.....	37
4.1 Descriptive Statistics.....	37
4.2 Test of Hypotheses .....	38
4.3 Robustness Test.....	43
4.4 Analysis and Interpretation .....	45
4.5 Conclusion .....	47
Chapter 5: Conclusions, Limitations and Recommendations .....	49
5.1 Conclusion .....	49
5.2 Limitations and Recommendations.....	51
Bibliography .....	53
Appendix:.....	59
1. Predictive Validity Framework – Libby Boxes (Libby et al. 2002) .....	59

## **Foreword and Acknowledgements:**

I first met Mr. Rob van der Wal at the interview of the PwC Honours Master Class 2017. In the interview, he asked my opinion on the implementation of Mandatory Audit Firm Rotation (MAFR) in Europe since 2014. I answered with my intuition that the regulation should be beneficial. Yet Mr. Van der Wal raised a few arguments against the MAFR and discussed the matter more extensively. Mr. Van der Wal gave me a vivid example of critical thinking. This is the basic requirement for being a university student, as well as being an auditor. Thus, I choose this topic as my final assignment for my master degree education at Erasmus University Rotterdam. This thesis is to examine the association between MAFR and firm's Disclosure Quality (DQ). This thesis focuses on a DQ perspective to evaluate the actual effect of MAFR, by implementing a different method, a different measurement. In this thesis, as my final assignment, I thrived my best to present all my knowledge and critical thinking.

Last but not least, I would like to thank Mr. Rob van der Wal, who has provided me from the beginning very valuable insights and admission to PwC Honors Master Class. Also Mr. van der Wal provided me so many feedbacks and support on my thesis in a timely manner. This is not only for my Master Thesis, Master degree but also it is for my life and career. I would also like to thank PwC, which gave me the opportunity to become an employee and provide me a inspiring environment to complete my thesis. Especially Ms. Sylvia Zhu, my coach at PwC gave me support not only on my thesis but also during my hardest time in my life. Finally, I would like to thank my parents, fellow classmates and friends who offer me a lot of support during my Master program at Erasmus University.

Lawrence Peng

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# Chapter 1: Introduction

## 1.1 Background

In the past decades a series of accounting fraud incidents have caused a crisis of confidence within the audit industry. Therefore, legislators and lawmakers in different countries are trying to improve this situation by implementing new regulations on the accounting and auditing profession. After the incidence of Enron in 2001, the United States implemented the Sarbanes-Oxley Act (SOX) in 2002 in order to improve the quality and regulation of audit by increasing the independence as well as transparency of the audit and to prevent incidence such as collusion between the auditor and the client (Coates, 2007). One essential element in the SOX is the Mandatory Audit Partner Rotation (MAPR), which implies that firms must change their audit partner every five years. Thereafter, other countries such as the United Kingdom, Canada and Australia implemented similar regulations to audit in their own countries. Moreover, countries such as Italy, South Korea and Brazil have implemented Mandatory Audit Firm Rotation (MAFR) in every a few years (Ewelt-Knauer, Gold, & Pott, 2012).

There has been a long debate about whether or not it is necessary to implement MAFR. There are in general three types of countries concerning MAFR<sup>1</sup>. Firstly, the countries that implemented MAFR, which are still effective today. These countries are Italy and Brazil. Secondly, the countries that first implemented MAFR, but then abolished it. These countries are Singapore, Austria, Canada, Greece, Czech Republic and South Korea. Thirdly, the countries that are not yet in favor of implementing MAFR, yet they adopt MAPR instead. Countries such as the United States, the United Kingdom and China are specific examples (Ewelt-Knauer, Gold, & Pott, 2012).

There is still no definite conclusion on which legislation is more effective regarding MAFR and MAPR. Arguments in favor of MAFR claim that MAPR is in nature not

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<sup>1</sup> This classification is applicable before the implementation of EU audit reform legislation in 2014, which regulates EU countries for mandatory audit firm rotation for PIEs. More details will be discussed in section 1.2.

radical enough and would not necessarily improve audit quality. Yet MAFR is more radical than MAPR (PwC, 2013; Ruiz-Barbadillo et al., 2009), as it cuts the possible connection between the audit firm and the client especially when considering the possibility of colluding (Ryan et al., 2001; Farmer et al., 1987). Moreover, MAFR is also beneficial for the supervision from successor audit firm to the previous audit firm and subsequently improves the quality of an audit (Raiborn, Schorg, & Massoud, 2006). On the other hand, arguments in favor of MAPR claim that MAFR will significantly increase the cost of changing to a new audit firm (switching costs). This will lead to a decrease in the audit quality in first of few years and increase of audit costs which is not beneficial for both audit firms and the client (Jackson, Moldrich, & Roebuck, 2008; DeAngelo, 1981; EY, 2013).

The debate between MAFR and audit quality has been discussed for a prolonged period of time. However, the effect of MAFR on client firm's Disclosure Quality (DQ) is still unknown. Looking at another prospective, one goal of audit is to assure the truthfulness and fairness of the financial statements. It is argued that audit quality is affecting client firm's DQ and that the DQ reflects the truthfulness and fairness of the financial statements (Financial Reporting Council, 2014). The term 'DQ' has been used to measure the fineness of the firm's information disclosures, mostly the financial statements. DQ is not identical as audit quality because it does not only consist of a true and fair view of the company but also how fine the information is presented to investors, which can be referred to as information quality. Given that investors and analysts rely largely on firm's disclosures to make investment decisions, it is important to look at the potential association between MAFR and DQ. Therefore, the purpose of this thesis is to investigate the effect of MAFR on client firm's DQ.

## **1.2 Implementation of mandatory audit firm rotation (MAFR) in Europe**

Before the decision has been made by the EU to implement the MAFR for Public Interest Entities (PIEs) in 2014, there were already a few countries that implemented it or implemented and then abolished it after a few years. Italy is the first country that

implemented MAFR in 1974. The CONSOB<sup>2</sup> regulates that PIEs must renew their audit firm every three years and one audit firm cannot last for a maximum of nine years consecutively. Thereafter, Spain adopted MAFR for every nine years since 1988 but it was then abolished in 1995, of which the first nine years term was still not finalized (Ruiz-Barbadillo et al., 2009). Austria implemented MAFR in 2004 but the MAFR was repealed before the MAFR showed any substantial effect.

In April 2014, the European Commission (EC) decided to perform an audit reform in the EU. An amending directive Direct2014/56/EU and a regulation No 537/2014 requires that PIEs shall rotate on a regular basis and shall not allow PIEs to have the same audit firm after certain number of service years ("Auditing of companies' financial statements", 2017). This regulation is applicable to EU member states, which specifically includes the UK and the Netherlands. These two countries have implemented MAPR in the previous years. Thus, these EU directives and regulation regarding the implementation of MAFR will change the audit rotation rules in these two countries.

### **1.3 Motivation and contribution**

From the previous introduction, it is worth noticing that despite that the MAFR topic has been discussed over the past decades, there is still no definite conclusion on whether implementing MAFR is improving the quality of audit or otherwise. This in consequence affects the quality of the firm's disclosure. Thus, the motivation to conduct this research study is that recently growing number of countries and economic regions such as the European Union have implemented MAFR for every few years. This is done to ensure the independence of the audit firms, the audit quality and in the end to enhance the confidence of the firms' stakeholders in the firm's DQ. However, as introduced in the previous chapter, countries such as Canada, South Korea, Singapore and Spain first decided to implement MAFR, yet after a few years or even some before the regulation showed any effect, the MAFR has been abolished. Countries who abolished the rule argue that implementing MAFR would lead to high switching costs for three parties:

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<sup>2</sup> Commissione Nazionale per le Società e la Borsa, Security Supervision Authority in Italy

the previous audit firm, the client and the new audit firm. It is thus costly for the client firm to switch its auditor from one to another. Furthermore, MAFR will cause a loss of specific knowledge for the client, which would lead to lower audit quality in the first few years after the auditor change has happened.

This study has three important purposes. Firstly, to contribute to the understanding of the determinants behind the firm's DQ. Secondly, to investigate the association between MAFR and firm's DQ. It is important to discuss the possible association between the presence of an auditor and the firm's DQ. To be more precise, could a change of an audit firm due to MAFR have a certain effect on the firm's DQ. Thirdly, to investigate whether the auditor, especially with industrial expertise or an industry specialist and high reputation (Big4) is a factor which affects the company's DQ. As, the previous research has shown evidence that auditors who are specialized in a certain industry have a positive effect on its client company's DQ. Thus, when financial statements are audited by industry specialists and auditors with market knowledge, the level of information disclosure is higher (Chiang & Lin, 2012). The reason for the abovementioned is that the auditor is required to express an opinion on whether the financial statements present a true and fair view of the company during the audit. It is also important that the auditor gives appropriate consideration and plans to obtain sufficient and appropriate audit evidence in relation to the disclosures. Therefore, it is expected that an auditor could be a factor affecting the company's DQ and that a change of auditor is expected to affect the client company's DQ. Moreover, there has been a lot of discussion in the past years of investigation about the association between mandatory auditor rotation and audit quality, yet evidence is still quite mixed. Additionally, there is also research showing the association between audit quality and DQ. Therefore, given the abovementioned, the theoretical support represents more of an indirect link considering the mixed evidence between these three variables, it is thus meaningful and interesting to investigate whether mandatory auditor rotation has a direct effect on company's DQ. Furthermore, this thesis is aiming to provide the first actual evidence on the consequence of implementation of MAFR in EU member states after the EU directive and regulation has gone into effect in 2015.



## 1.4 Research question

Based on the previously presented introduction, the purpose of this thesis is to investigate the effects of MAFR on client firm's DISCLOSURE QUALITY (DQ). More precisely, this thesis examines the association between a mandatory change of audit firm, and the DQ of the client firm after the auditor change. It aims to discover whether in general the DQ of the firm increased after the implementation of mandatory auditor rotation. Thus, the research question is formulated as such:

*Research Question: Is there an association between MAFR and the client firm DQ?*

*Sub-Research Question<sub>1</sub>: Is there an association between industry specialist auditor and the client firm DQ?*

*Sub-Research Question<sub>2</sub>: Is there an association between Big4 audit firms and the client firm DQ?*

## 1.5 Methodology

In this thesis study, the data sample used has been taken from the statistical data of the Netherlands, the United Kingdom and Italy. As the Netherlands and the UK have both implemented the EU directives and regulations concerning MAFR since 2015. The data from Italy has been chosen because Italy has already implemented MAFR since 1974. Statistical data from Italy will provide a more solid and reliable conclusion as a complementary support for the data from the Netherlands and the UK when examining the association between MAFR and DQ. The timeframe of the data has been chosen for 2012 as the beginning period for the thoughtful consideration of MAFR in the EU begins in 2012. As of 2012 till 2016 there were already considerable number of firms that changed their audit firms because of the EU regulation or possible implementation of the EU MAFR regulation. The data from the Netherlands, the UK and Italy from 2012-2014 has been taken as pre-implementation, and timeframe of 2015-2016 has been considered for post-implementation of the largest companies listed as the sample. To examine the association between MAFR and firm's DQ, the following steps have been implemented. Firstly, the data has been collected from the audit firms hired by large companies listed in the UK, Netherlands and Italy in year 2012 to 2016. Secondly,

the firms that have an audit firm in either 2015 or 2016 have been identified and compared to the data in 2014. Apart from that, changing between non-Big4 and Big4, as well as changing between non-industry specialist and industry specialist have been identified. Thereafter, the data is retrieved from the annual reports publicly available at the Compustat database for sample firms. The count of the non-missing items has been made as captured by Compustat and the Disaggregation Quality Score (DisQ) for each sample firm that made auditor switches within the specified period has been calculated and the DisQ before and after the switch has been compared. Additionally, the disclosure scores for discretionary accruals (DA) have been calculated. Finally, to test the hypotheses a few control variables have been added to the regression analysis to control for the other effects on the dependent variable.

## **1.6 Structure of this thesis**

The remainder of this thesis is organized as follows. Chapter two covers the theoretical background of this thesis by explaining the underlying economic theories. Furthermore, the literature concerning MAFR, audit quality and DQ will be discussed. In chapter three of this thesis study, the data collection process, research methodology and the econometric model used for this research will be explained. Additionally, chapter four of this paper discusses the descriptive statistics, results on the hypothesis tests and the further analysis of the data. Finally, chapter five concludes with an answer for the research questions and limitations of this thesis.

## **Chapter 2: Theory, Literature and Hypothesis Development**

In this chapter, relevant theories, literature are described and discussed. Moreover, based on the theories and literature, hypotheses of this study are developed. More specifically, in the theoretical background section of this chapter, the Agency Theory, Limperg's theory of Inspired Confidence and the Stewardship Theory are discussed. These theories are critical to accounting and auditing studies as the core of providing audit service is reducing information asymmetry. Information asymmetry plays a vital role in the audit sector. After discussing critical theories in relevant aspects, a literature review concerning MAFR and/or MAPR and Audit Quality/ DQ and auditor industry specialization will be provided. In the end, based on the previous mentioned theory and literature, hypotheses are developed.

### **2.1 Theoretical Background**

#### **Agency Theory**

The purpose of this thesis is to investigate the association between Mandatory Auditor Rotation and the DQ of the client firm. Agency Theory contributes to the basic theoretical background of this thesis. Agency Theory was initially developed by Jensen and Meckling (1976), and was later developed into Contracting Cost Theory. The Contracting Cost Theory assumes that a firm is formed by a series of contracts. These contracts include contractual relationships between capital provider, such as the shareholders, debt holders and the management; the relationship between the firm and the loan provider, between the firm and customers, employees and so on. The Agency Theory mainly focuses on the contractual relationship between the resource provider of the firm and the actual user of the resource. According to Jensen and Meckling (1976), the provider of the economical resource is named as "principal" where the actual usage and control of these resource is named as "agent". In the view of the Agency Theory, when the management itself is also the provider of economic resources, they have the full residual claim to the firm and therefore, it is expected that they would work efficiently for themselves. In this situation, the "agent" is identical with the "principal"

and the so called “principal-agent” relationship does not exist. However, when management starts raising external economic resources by issuing shares, management might have the motive to relax and reduce their work incentives. Speaking from a rational perspective, it is expected that under this relationship, there will be a considerable difference of action between when the management raises external capital, comparing to when they own full shares of the company. Similarly, this agency problem exists when management raises external capital through issuing debt. Therefore, as discussed above, Jensen and Meckling (1976) classify this situation as the “agency problem”.

Jensen and Meckling (1976) divided Agency Cost into monitoring costs, bonding costs and residual losses. Monitoring costs are the costs that external shareholders use to monitor the management for exceeding the expenses and underperforming. Bonding cost is the cost that agents (commonly the management) use to gain trust from external shareholder such as periodic report firm performance to shareholders and hiring external independent audit, and so on. Residual losses are the losses caused when there is a conflict of interests between the principal and the agent.

Moreover, information asymmetry plays a significant role in the agency theory. According to the agency theory (Jensen & Meckling, 1976), the agent has more information in his possession than the principal. This information asymmetry will have an adverse impact on the effectiveness of monitoring agents if they are serving at the best interest of the principal. The agency theory also assumes that the principal and the agent are rational. They intend to maximize their own fortune by signing the contract between the two parties. In the meantime, the agent may use any possible opportunities to increase his own profit, based on the egoism theory. Therefore, there may be some actions that may harm the interest of the principal. Some examples are building a luxury office for the agent, purchasing luxury cars and so on. In this principal-agent relationship, there is a ‘Pareto Optimality’ where none single party can increase its own fortune through harming the interest of the other party. In other words, it means that in an efficient market, those who engaged in opportunistic behavior to harm other’s interest shall be responsible for the final consequence. For example, it will be more

difficult for a borrower to borrow money with a low credit rating/ reputation. Also, another example from accounting and auditing aspect is that an accounting firm that are punished by AFM in the Netherlands (or authorities in Financial Industry in other countries) might experience difficulties in finding new clients.

### **Agency Theory and Internal Audit Function**

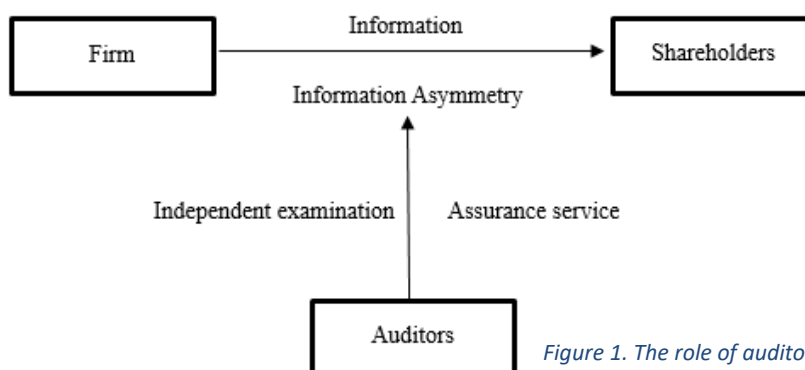
To maximize either party's own interest, the principal and the agent will encounter "contracting cost". In the meantime, to lower the risk of so called "loafing" of the agent, the principal will encounter "monitoring cost" such as the cost encountered when hiring external audit to the company's financial statements. On the other hand, the agent will also encounter the so called "compliance cost" that to demonstrate to the principal that the agent is efficient and effective in the contract. One example is to set up an internal audit department by the management, which is associated with internal audit fees. By establishing the internal audit department, intended to let the principal be fully aware of the actions committed by the agent, can increase the trust of the principal to the agent. This can assist the agent in gaining a stable position within the company as well as maintaining their level of compensation (Adams, 1994).

As is discussed in the above paragraph, internal audit can be seen as both monitoring cost and contracting cost. Considering internal audit as the monitoring cost, this is done due to the demand of the management to increase the confidence of the principal to the management team. Sherer and Kent (1983) suggest that internal audit is a function affiliated to external audit, that the difference is the cost caused directly by the management. Sherer and Kent (1983) also suggest that the management will only apply internal audit function only when the combination of internal audit and external audit cost less than sole-external audit function. And the reason why this combination is better is that internal audit staff are familiar with the system within the company and are equipped with professional knowledge within the industry. Thus, it is regarded as more efficient than external audit. Moreover, internal audit can be a "feedback system", which reports and fixes issues that might have negative influence on the company's financial performance.

From another perspective, an important reason to inefficiency of internal audit is the influence or intervention of the management. Even if it is clearly prohibited by the regulations of the firm, it is still possible for the company management to influence the audit through either direct means or indirect means, thus outsourcing some internal audit functions to external accounting firms can considerably increase the independence of an audit. And through doing so, the company management increases the confidence of the owner, in many cases the shareholders, to the management (Barr & Chang, 1993).

### **Limperg’s theory of Inspired Confidence and the function of External Audit**

The Limperg’s theory of Inspired Confidence (1932) explains the market need of independent examination for the companies’ information. Also, the theory explains the function and the the social responsibility of an auditor. The theory states that auditors exist because of the need for audit service in the market and an auditor should behave as they are expected to be an “rational outsider”. The nature of auditor, as a “rational outsider” may drive auditor to demand a higher quality of disclosure from the firm. “The demand of audit service is the direct consequence of the participation of the outside stakeholders or third parties in the economy” by Hayes et al. (2005). Because the information given by the management might be biased according to the Agency Theory and Contracting Theory. In other words, in a “Principle-Agent” relationship, there is always an information asymmetry between the firm and the shareholder. The existence of an auditor provides assurance that the examined information (for instance financial statements) provides a true and fair view of the company. Therefore, an audit of the information, and in most cases the financial statements is needed.



*Figure 1. The role of auditor in ‘principal-agent’ relationships.*

## **Stewardship Theory**

In the late 20<sup>th</sup> century, the general environment of corporate governance has been improved, firms and managers are paying more attention to developing the firm into a more high-level, socialized direction. The interest of agent and principal is more tending to become the same and it is therefore, the agent-principal relationship is not that serious anymore. With this development of the agent-principal relationship, the Stewardship Theory was brought up by Donaldson and Davis (1989). They created this new corporate governance theory from the aspect of sociology and psychology. The authors suggest that, different from the agency theory, the basic assumption is the motive and the agent is the same with the interest of the principal. They emphasize that information asymmetry does not necessarily lead to an opposing relationship between the agent and the principal. And it is therefore, the principal who should use a more “mild” sort of means to monitor and to encourage the agent to act in the interest of the principal, instead of using sort of means that are aiming at controlling and mandating the agent. When applying the Stewardship Theory to the accounting field, the relationship is not only with the service provider, but with a person in a society that is with both social and legal attributes. Therefore, on the one hand, as an agent or steward in the theory, the management has the motive to chase self-interest, but on the other hand as a person in the society, the management itself has collective sense with the demand of “self-actualization” and “self-development”. And these two identities (as a steward as well as a natural person in the society), according to Donaldson and Davis (1989), can be integrated. Therefore, if the principal here can communicate and understand the nature of the agent as a natural person, then the theory emphasizes the crucial point of governance to monitor the agent while he should be giving the agent more trust, more authority, more decision power but not with strict control and investigation of the agent.

## **2.2 Mandatory Auditor Rotation (MAFR/ MAPR)**

In the recent years, several big accounting fraud incidences such as Enron and WorldCom have led the legislator in different continents and countries to pay more attention to improve the independence of auditors. As is discussed also in the previous introduction section, legislators in many countries have implemented or advised to implement the mandatory rotation of auditor (either MAFR or MAPR). In this way, the legislators are hoping to increase the independence of audit and the quality of audit, through lowering the familiarity between the auditor and the client and introducing new insights (PwC, 2013). However, there are some opposing that auditor themselves are in fact equipped with the economic motives to become independent (DeAngelo, 1981), and audit quality may be lower because of the lack of knowledge on the client for the new auditor (Geiger & Raghunandan, 2002).

Auditor Rotation can be divided into Mandatory Auditor Rotation (MAR) and Voluntary Auditor Rotation (VAR). Both MAR and VAR can have partner rotation and firm rotation. Most of the VARs are because the audit firm wants to resign in order to protect their independence in audit. An example is that most of the audit firms have internal rules to rotate audit partner every few years. Moreover, MAPR is implemented in a few countries. For instance, in 2002, United States implemented the Sarbanes-Oxley Act (SOX). One of the key elements of the SOX is that an audit partner for an audit project must be changed every five years. And yet, the concept of MAFR is still not widely accepted and still under debate. Although as of 2014 European countries are subject to MAFR, the effect of this regulation is still being discussed and not yet been researched<sup>3</sup>. Currently there are two main arguments regarding MAFR and MAPR. Firstly, Johnson et.al (2002) believe that a long tenure of an auditor may damage the independence of the audit either in appearance or independence of the mind. Secondly, other academic scholars, for example Dopuch et. al (2001), believe that new audit partner of an audit firm can bring innovative ideas to the company.

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<sup>3</sup> Although many literatures discussed the effect of MAFR to audit quality, yet the actual impact of the implementation of MAFR on audit quality/ disclosure is still under questioned.



According to DeAngelo (1981), audit quality is the possibility that an auditor notices and reports material weaknesses in the client's financial reports. Further, the possibility to notice material weaknesses depends on the professional skillset of the auditor, whereas the possibility to report this material weakness depends on the independence of the auditor. Therefore, audit quality depends on the professional skillset and the independence of the auditor. However, the longer the tenure of an auditor, the more possibility there is for the audit staff to familiarize themselves with the client, and this could bring self-interest that can be a threat to the independence of the auditor (Mautz and Sharaf, 1961; IESBA, 2009). Based on the above-mentioned arguments, in practice regulators and audit firms are trying to control such threat to independence through implementation of the new rules. One of the means is through intervention to the process of audit quality control by government authorities. An example is the implementation of Sarbanes-Oxley Act (SOX). Another way is through the regulation set by the audit firm themselves and the audit industry because audit firms are motivated to maintain their reputation based on the assumption of market economy and economical motives (DeAngelo, 1981; Reynolds and Francis, 2000).

### **2.3 Auditor Rotation and Audit Quality**

Different sorts of auditor rotation have different impact on audit quality. Comparing to audit partner rotation, audit firm rotation is more likely or in other words it is more effective to decrease the familiarity between the client and the auditor and therefore to increase the independence of an audit. However, an audit firm rotation might lead to a decrease in professional skills of the audit and thus lead to a lack of client-specific knowledge and make it more difficult to notice material weaknesses (Shu, 2000).

After the Enron incidence, many academic scholars started to investigate whether implementing MAFR can in fact increase the financial reporting quality or audit quality. Yet no definite conclusion can be reached. For example, some found that MAFR is positively associated with audit quality (Nagy, 2005; Cahan & Zhang, 2006; Krishnan, 2007). Whereas others conclude the opposite association, such as the findings by Blouin

et al. (Blouin et al., 2007; Krishnan et al., 2007). Besides the United States, there is also other mixed evidence for the investigations that are conducted in other countries. Kim and Yi (2009) found positive association between MAFR and audit quality based on Korean firm sample, whereas Ruiz-Barbadillo et al. (2009) do not have similar conclusion based on the Spanish sample. To conclude, there are arguments with positive associations, negative associations and mixed evidence, which is why this research is important to specifically choose towards one of them.

### **Positive Association**

Academic scholars arguing there is a positive association between MAFR and audit quality claims that MAFR can increase audit quality because a too long tenure of an auditor may lead to high familiarity between the auditor and the client and this could have negative influences on the independence and professional skepticism. Thus, it lowers the quality of an audit. Many researches demonstrated that with the increase of auditor tenure, the audit quality is more likely to decrease. Therefore, these researchers are in favor of MAFR, stating that a long tenure of an audit can have a negative influence on the objectivity and furthermore the independence of an auditor (Mautz and Sharaf, 1961). And that MAFR can eliminate or decrease the undue influence from the client and in the end, increase the quality of an audit (Brody and Moscovice, 1998).

Dopuch, King and Schwartz (2001) found that, a regular auditor rotation, no matter with or without the implementation of MAR at the same time, can significantly increase the independence of an audit. However, if none of these two controls is implemented, then the results are the worst. Geisler and Low (2008) use a sample from Singapore to testify the influence of three different sorts of auditor rotation to the audit (MAFR, MAPR and mandatory audit staff rotation). They found that MAPR is better than mandatory audit staff rotation because MAPR can increase the 'judgement accuracy' of the audit staff. When both the partner and audit staff are changed, they found MAPR has a better effect than MAFR. Church and Zhang (2006) investigate the influences of implementing MAFR on audit independence. They found that audit independence increased with MAFR. Under circumstances such as high switching cost, long audit

rotation period and the local authority is more focused on the short-term benefits, thus implementing MAFR can help to increase audit quality.

### **Negative Association**

Researchers holding opinion of negative association between MAFR and audit quality claims that longer audit tenure can increase audit quality. This is because they believe that longer auditor tenure can enhance the industry-specific knowledge of the client as well as the firm specific knowledge and accounting principles and so on. These client-specific knowledges are beneficial for auditor to utilize their professional competence and thus are easier to notice material weakness in the financial statements and in the end, increase the quality of audit. Palmrose (1986, 1991) found that in the first few year of the audit, the auditor is facing a higher risk in the case of lawsuits because of the lack of the knowledge of certain risks that related to the new client. Petty and Cuganesan (1996) and Geiger and Raghunanda (2002) also found that audit failure is easier to happen in the first two years of an audit period. And thus, they believe that a longer auditor tenure can let the audit staffs to be more familiar with the client-specific knowledge and in the end increase audit quality.

Ghosh and Moon (2005) looking from the perspective of investors. They use Earnings Response Coefficients (ERC) as proxies for Earnings Quality and found that audit quality is higher with a longer auditor tenure, based on the evaluation made by investors and analysts. Blouin et al. (2007) investigate how clients choose and evaluate audit firm after the collapse of Enron and Arthur Andersen. They found that those clients with more manipulative accruals are more tending to hire the audit firm that the original audit staffs later joined. However, the year after the new engagement, comparing with those clients who hired a new crew, clients who hired original audit staffs are not specifically showed to be more aggressive. Therefore, the common assumption is not confirmed. They found that MAFR cannot have a direct influence on the financial reporting quality.

Ho et al. (2010) look at the relationship between audit tenure and annual firm manipulative non-recurring items in the financial statements. They found that auditor

rotation will have an impact on the company's choice of strategy to avoid negative earnings. That means that earnings quality increases with the increase of auditor tenure. Ali et al. (2011) use data from Jordan, which is a developing country. They investigate the effect of audit firm rotation and audit firm size on audit quality. They found negative relationship between the audit firm rotation and audit quality. Audit quality decreases when auditor tenure is extended together with the increase of manipulative accruals. In the meantime, there is not enough evidence supporting the association between audit firm size and audit tenure or audit quality.

### **Mixed evidences**

Except for the opinion that there is a positive association/ negative association between MAFR and Audit Quality, there are many other scholars claim that there are mixed evidences between MAFR and Audit Quality. Their main point of view is that for a short period of time, there is a positive association between audit tenure and audit quality. Whereas after a certain period of years, the association is becoming negative. In recent years, there are many more in depth researches done by academic scholars with more variables.

Boone et al. (2008) investigate the association between audit tenure and audit quality from a perspective of investors. They use cost of capital as a proxy for audit quality, as recognized by investors. They propose the hypothesis that the relationship between audit tenure and audit quality is non-linear. Their results show that in the preliminary period of the audit, the extension of audit will increase audit quality, represented by the decrease of cost of capital. When, on the other hand, after a period, the longer the audit tenure, the lower the audit quality, represented by decreasing cost of capital.

Nagy (2005) use the former Arthur Andersen clients' data to examine the association between auditor rotation and audit quality. They found that DA significantly decreased after small-size clients changed their auditor; whereas big clients do not have this kind of a relationship. This indicates that even if in the case of mandatory or forced change of an auditor, big companies often have stronger bargaining power and thus the

size of the company may have an impact to the benefit of changing an auditor.

Hatfield and Vandervelde (2008) investigate the impact of audit staff rotation, where the client is pressured to the decision made by the firm to change an auditor or to dismiss an auditor. Results show that under the situation of both audit staff and audit firm rotation, there is no significant difference between the two variables. Daniels and Booker (2011) found that implementing MAFR although changed the recognition by loan officer of audit independence but it did not, in fact, change the recognition of audit quality. Chen et al. (2008) use a sample of Chinese Taiwan firms and found that rotating audit partner of an audit project is negatively associated with earnings quality. This is especially happening for clients that with 5-7 years of tenure. Yet, audit firm rotation does not have a significant relationship with earnings quality. The paper of Gul et al. (2009) investigates the influence of audit tenure to earnings quality given that auditor is more specialized nowadays. They found that comparing to auditors' industry specialization, non-industry specialized auditors have lower auditor with shorter audit tenure. Lim and Tan (2010) investigate the relationship between auditor industry specialization, audit fees independence, audit tenure and audit quality. Results show that when auditor is industry specialized, audit quality increases with the audit tenure increases. Whereas the result is the opposite with the condition of audit fee independence. Lastly, Martinez and Reis (2010) use Brazilian public listed firms as sample to investigate the impact of rotation among the Big4 to earnings management by considering firm's abnormal working capital accrual. They found that there is no significant influence on earnings management if a firm changed its auditor. A possible explanation is that within Big4 there are already regulations regarding internal audit staff rotation.

## **2.4 Auditor's Industrial Specialization and Audit Quality**

Auditor's industrial specialization is one of the factors influencing audit quality. Yet there is a limited amount of academic papers available investigating the association between auditor's industrial specialization and audit quality. Deis and Grioux (1992) and O' Keefe et al. (1994) focus on non-profit organizations audit quality control and

investigate the association between auditor's industrial expertise and audit quality. Results show that there is a positive association between auditor's industrial specialization and audit quality. Lys and Watts (1994) investigates the relationship between auditor's industry market share and auditors' litigations. They hypothesized that auditors with higher industry market share represent higher level of industry specialization and thus the higher audit quality, which results in less litigation. However, their research shows that no matter which of the two proxies they choose to measure auditor's industry specialization, there is no proven association between industry market share and auditor's litigation. This furthermore indicates that there is no association between auditor's industry specialization and audit quality.

Therefore, although clients, Big N auditors and audit regulation setters emphasized a lot about the importance of auditor's industrial specialization, the link between auditor's industry expertise and audit quality is still not clear at least from what research showed. In the meantime, there is still not many relevant research studies concerning auditor's industrial specialization and DQ. Investigating the association between auditor's industry specialization and DQ will have a better indication for the factors that contribute to audit quality.

## **2.5 Disclosure Quality and Hypotheses development**

The sections above have comprehensively explained and reviewed the underlying theories, auditor rotation, the association between auditor rotation and audit quality, and the association between auditor's industrial specialization and audit quality. However, it is still not yet been researched extensively regarding the association between MAFR and DQ. Previously, Dunn and Mayhew (2004) investigated the association between audit firm industry specialization and client DQ. They found that firms, which hired industrial specialist auditor have higher DQ than the firms that did not. Another paper looking into similar topic is Chiang and Lin (2012). This paper investigates auditor's industry specialization and DQ of IAS No.39-Related Accounts. The authors found that level of DQ is higher when financial statements are audited by industrial specialist, but the economic factors can influence the auditor's attitude when the client is of high

importance. However, Dunn and Mayhew (2004) use AIMR score to measure client DQ. The AIMR score has been discontinued since 1997 after ranking fiscal year 1995. Chiang and Lin (2012) look typically in the context of Taiwan, Republic of China, which has many regulation differences comparing with Europe. Therefore, I formulate the following hypotheses, to re-examine the association between auditor choice and client DQ:

*H1: DQ is higher for firms that hire Big4 audit firms as their auditor.*

*H2: DQ is higher for firms that hire an industry specialist audit firm as their auditor.*

Furthermore, besides these two articles, there is no further related research examining the association between auditor rotations and DQ. In the meantime, the association between audit quality and DQ is of mutual influence. And that among all the studies investigating the association between MAFR and Audit Quality, the results are not the same from time to time. This is because of the differences in research design (proxies) in each of these studies. DeFond and Zhang (2014) provide a comprehensive review on archival studies of audit quality and the choice of audit quality. They argue that higher audit quality implies higher assurance of high financial reporting quality. The research of DeFond and Zhang (2014) provide a clear link between audit quality and financial reporting quality (DQ in this case). Thus, the third hypothesis is developed as follows, based on Dunn and Mayhew (2004), examine specifically about the change in audit firm due to the implementation of MAFR in Europe:

*H3: DQ is higher after the firm has changed its auditor due to the implementation of MAFR in Europe.*

## **2.6 Conclusion**

This chapter gives a complete review in relevant theories in accounting and auditing, especially concerning auditor rotation. Also, relevant academic literature is reviewed. Based on the theories and the previous literatures, the hypotheses of this study are developed. This chapter has given a more in-depth view in MAFR, Audit Quality, DQ and Industry Specialist Auditor. Especially regarding the link between MAFR and Client Firm DQ.





## Chapter 3: Research Methodology

In this chapter, the design of this study will be described and explained. In the first section, the sources processes of retrieving the sample of this study will be described. In the following section, the dependent variables, independent variables and control variables are defined and explained. Also, descriptive statistics of the sample is provided in comprehensive tables.

### 3.1 Sample Selection

The research sample of this study focuses on public listed firms in the Netherlands, the United Kingdom and Italy. For the UK part, in total the FTSE250 list is chosen as sample. This index consists of 250 firms listed on London Stock Exchange. FTSE 250 firms are chosen because of the comparability with similar-size firms in the Netherlands and Italy. Which on the one hand ensure the comparability and the sample population and on the other hand prevent from sampling firms that are too large in terms of firm capital. For the Netherlands part, the entire database for public listed firms in the Netherlands is chosen on Bureau van Dijk Database. For Italy, firm names and data are also collected from Bureau van Dijk. In order to have a similar data sample population, I only retrieve firms that are ranked as “VERY LARGE” on the database. For all three countries, firms from the financial industry with SIC-codes 6000-6999 are excluded because of the incomparability of their financial statements and assets with firms in other industries. Research period is selected from 2012 to 2016. Although the decision made by European commission was in 2014, the general debate and pre-action of the firms already began in 2012<sup>4</sup> (Ewelt-Knauer et al., 2012). Year 2016 as the ending point of my research period is chosen because of the latest data availability. As a result, after deducting and eliminating data that is missing or not updated, there are 130 firms with 633 firm-year observations for the UK sample. For the Netherlands, there are 81 firms, resulted in 395 firm-year observations. In terms of Italy, there are 134 firms, resulted in

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<sup>4</sup> In 2012, the European Parliament proposed audit firm rotation as mandatory at 25 years. However, after Germany and Austria voted strongly against such a long tenure, it was to be reduced to 21 years.

657 firm-year observations. Three countries combined, for the time period 2012-2016, there are in total 345 firms with 1685 firm-year observations.

In terms of data availability, firm names, current auditors are collected from Amadeus database from Bureau van Dijk. Historic auditor data, however, needs to be hand collected. From Orbis database (Via ThomsonOne) a record of current and historic auditor can be collected by manually input firm name in the search column. This function (historic auditor data) is recently added into the newest version of Orbis whereas previous researched that are focused in European firms experienced difficulties in totally hand collecting data from each firm's annual report, which are complex, inefficient and easy to data missing problems. With the new function on Orbis database, historic auditor data can be more easily collected with more completeness. Other than auditor data, firm's fundamentals (financial information) are collected from Compustat Global via WRDS. I choose Compustat instead of Bureau van Dijk (BvD) although BvD also has similar function because Compustat data base provide a more recent (all with 2016 statistics) and complete information than BvD (many of the sample firms only updated with 2015 information). Table 1.1 illustrates an overview of the sample descriptive statistics. More detailed descriptive sample statistics are presented in Table 1.2 which shows the number of firm-year observations per country and industry for each year.

## **3.2 Measurement of Variables**

### **Dependent variable**

The purpose of this thesis is to investigate the association between MAFR in Europe and client DQ. Therefore, the dependent variable is the Disclosure Quality (DQ). However, the measurement of DQ is complicated and previous research has examined DQ using different sorts of proxies. On the one hand, there are surveys, questionnaires, external rating and analyst opinions focusing on the subjective side of the disclosure measurement (Imhoff, 1992; Coleman & Eccles, 1997; Welker, 1995). On the other hand, there are objective

**Table 1.1 – Sample Descriptive Statistics**

<b>Panel A: Countries</b>		
Country	No. of Firm-years	No. of Companies
United Kingdom	633	130
Italy	657	134
Netherlands	395	81
Total	1,685	345

<b>Panel B: Industries</b>		
Industry	SIC Codes	No. of Observations
Agriculture, Forestry, Fishing	0100-0999	5
Mining	1000-1499	50
Construction	1500-1799	88
Manufacturing	2000-3999	758
Transportation & Public Utilities	4000-4999	195
Wholesale Trade	5000-5199	69
Retail Trade	5200-5999	144
Services	7000-8999	367
Public Administration	9100-9729	0
Non-Classifiable	9900-9999	9
Total		1,685

<b>Panel C: Auditors</b>	
Auditor	No. of Observations
BDO	78
Baker Tilly Berk	18
Deloitte	406
Ernst & Young	356
Fidital	4
Grant Thornton	10
KPMG	378
Mazars	30
PKF	15
PwC	349
Rayner Essex	2
Stroeken Rossieau	2
N.A. (Missing Data)	37
Total	1,685

measures such as using disclosure index, event analysis and content analysis (Krippendorff, 1980; Weber, 1985; Botosan, 1997; Lang & Lundholm, 2000). These measurements have one feature in common, which is that they either rely on external analyses and ratings or they rely solely on analyzing the presentation of annual reports. This thesis, however, examines the level of DQ by accessing the ‘fineness’ of financial

statements.

**Table 1.2 – Sample Descriptive Statistics**

<b>Panel A: Firm-Year Observations per Country</b>						
Country	2012	2013	2014	2015	2016	Total
United Kingdom	129	130	130	129	115	633
Italy	129	133	134	134	127	657
Netherlands	78	80	80	78	79	395
<b>Total</b>	<b>336</b>	<b>343</b>	<b>344</b>	<b>341</b>	<b>321</b>	<b>1,685</b>

<b>Panel B: Firm-Year Observations per Industry</b>						
SIC Code	2012	2013	2014	2015	2016	Total
0100-0999	1	1	1	1	1	5
1000-1499	10	10	10	10	10	50
1500-1799	17	18	18	18	17	88
2000-3999	152	154	154	153	145	758
4000-4999	39	40	40	40	36	195
5000-5199	14	14	14	13	14	69
5200-5999	29	30	30	30	25	144
7000-8999	72	74	75	75	71	367
9100-9729	0	0	0	0	0	0
9900-9999	2	2	2	1	2	9
<b>Total</b>	<b>336</b>	<b>343</b>	<b>344</b>	<b>341</b>	<b>321</b>	<b>1,685</b>

To capture the “fineness” of financial statements, this thesis considers the perspective of earnings quality by using discretionary accruals (DA) as proxy. As higher DQ and audit quality implicates often a higher level of earnings quality by lowering the chance of management earnings (Myers, et al., 2003; Carey & Simnett, 2006; Jackson, et al., 2008; Chi, et al., 2009; Cameran, et al., 2016). Jones (1991) developed a model to measure the abnormal amount of DA. Jones (1991) suggests that managers can manage these accruals and it would therefore lead to management earnings. More present researches have adopted and developed the model such as Dechow et al. (1995) and Bruynseels and Cardinaels (2014). This thesis will use the model developed by Bruynseels and Cardinaels (2014) as this model is more recent and it controls the asymmetric timelines of accruals in losses and gains recognition. Thus, the model to calculate DA per year of each company is formulated as follows:

$$\begin{aligned} \frac{TACC_{i,t}}{AVTA_{i,t}} = & \beta_0 + \beta_1 \left[ \frac{\Delta REV_{i,t}}{AVTA_{i,t}} \right] + \beta_2 \left[ \frac{PPE_{i,t}}{AVTA_{i,t}} \right] + \beta_3 \left[ \frac{CFO_{i,t}}{AVTA_{i,t}} \right] + \beta_4 DCFO_{i,t} \\ & + \beta_5 \left[ \frac{CFO_{i,t}}{AVTA_{i,t}} * DCFO_{i,t} \right] + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where in this equation,

$TACC_{i,t}$  is the total accruals for firm  $i$  in fiscal year  $t$ , calculated as income before extraordinary items minus cash flow from operations;

$AVTA_{i,t}$  is the average of total assets for firm  $i$  in year  $t$  and  $t-1$ ;

$\Delta REV_{i,t}$  is the change in revenues for firm  $i$  in year  $t$ ;

$PPE_{i,t}$  presents the amount of gross property, plant, and equipment for firm  $i$  in year  $t$ ;

$CFO_{i,t}$  equals the cash flow from operations for firm  $i$  in year  $t$ ;

$DCFO_{i,t}$  is a dummy variable equal to 1 if  $CFO_{i,t}$  is negative, and 0 otherwise;

$\varepsilon_{i,t}$  is the error term

Thereafter DA are calculated as the difference between the estimated values from Equation (1) and the actual amount of total accruals. High values of DA indicate a higher possibility of earnings management and thus lower earnings quality, which implies a lower DQ.

Besides the DA measure, a new measure of DQ is adopted, which is developed by Chen et al. (2015). In their study, they develop a new measurement assessing DQ by calculating Disaggregation Quality (DisQ). According to Chen et al. (2015), they count the total non-missing line items on Compustat for each firm's annual financial statements and thus a higher number of non-missing line items indicates a higher level of information disclosure by disclosing as much details of financial information as possible. Comparing to those researches which are assessing DQ by employing external disclosure index or pure textual analysis, the method developed by Chen et al. (2015) can better capture the "fineness" of financial statements. Therefore, this method will be also employed as an additional measurement of DQ. Thus, the method in sum is explained as follows:

$$DisQ_{i,t} = Count(nonmissing\ Balance\ Sheet\ and\ Income\ Statement\ items)_{i,t} \quad (2)$$

To examine the change in DQ before and after auditor rotation, and to test the previous explained hypotheses, the difference between the values from the above equations is used. To start with, the first period of change is defined as the difference between the year before the auditor change (t-1) and the year when the auditor changed (t) where t indicated the auditor switch. This auditor change is defined as  $C1 = DQ_t - DQ_{t-1}$ . C1 indicates the most direct comparison of the DQ change before and after the auditor switch. Secondly, period C2 is defined as the difference between DQ of the year after the auditor change (t+1) and the DQ of the switch year (t), thus  $C2 = DQ_{t+1} - DQ_t$ . And lastly, period C3 is defined as the difference between DQ of the year after the auditor change (t+1) and the DQ the year before the change (t-1), thus  $C3 = DQ_{t+1} - DQ_{t-1}$ .

**Table 2.1 – Explanation of Dependent Variables**

<b>Variables</b>	<b>Proxy</b>	<b>Measurement</b>
<i>C1DisQ</i>	Immediate effect of auditor rotation on DQ, proxied by Disaggregation Quality	Calculated as the DisQ Score of year $t$ minus $t-1$ , where $t$ is the year of auditor rotation.
<i>C2DisQ</i>	Effect on DQ one year after the year of rotation, proxied by Disaggregation Quality.	Calculated as the DisQ Score of year $t+1$ minus $t$ , where $t$ is the year of auditor rotation.
<i>C3DisQ</i>	Effect on DQ one year after the year of rotation comparing to the year before rotation, proxied by Disaggregation Quality.	Calculated as the DisQ Score of year $t+2$ minus $t-1$ , where $t$ is the year of auditor rotation.
<i>C1DA</i>	Immediate effect of auditor rotation on DQ, proxied by Discretionary Accruals.	Calculated as the values of Discretionary Accruals in year $t$ minus $t-1$ , where $t$ is the year of auditor rotation.
<i>C2DA</i>	Effect on DQ one year after the year of rotation, proxied by Discretionary Accruals.	Calculated as the values of Discretionary Accruals in year $t+1$ minus $t$ , where $t$ is the year of auditor
<i>C3DA</i>	Effect on DQ one year after the year of rotation comparing to the year before rotation, proxied by Discretionary Accruals.	Calculated as the values of Discretionary Accruals in year $t+1$ minus $t-1$ , where $t$ is the year of auditor

### **Independent variable**

In this thesis, the effect of MAFR on DQ is examined, which is described as H3 in the hypothesis development of this study. Furthermore, this thesis also investigates the association concerning switching between Big4 auditors and non-Big4 auditor (H1) and switching between industry specialist and non-industry specialist (H2). Therefore, a dummy variable is created for auditor rotation which equals to 1 if there is an auditor change in that year, 0 otherwise. Another dummy variable is created for Big4 auditor

which equals to 1 if the auditor is one of the Big4 auditor, 0 otherwise. Lastly, a dummy variable is created for an industry specialist auditor which equals to 1 if the auditor is industry specialist and 0 otherwise.

The concept of “Big4 auditor” is defined as auditors which belongs to one of the Big4 audit firms: PwC, EY, KPMG and Deloitte. All other audit firms are considered as non-Big4 auditors. Industry specialist is defined as, according to Dunn and Mayhew (2004), audit firm that gains more than 20% market shares in a specific industry. An industry is defined as all companies that are equipped with a two-digit Standard Industry Classification (SIC) code in the Compustat database.



**Table 2.2 Specialist Distribution***Specialist audit firm per industry per country per year*

<b>Year \ SIC Code</b>	<b>0100-0999</b>	<b>1000-1999</b>	<b>2000-3999</b>	<b>4000-4999</b>	<b>5000-5999</b>	<b>7000-8999</b>	<b>9100-9999</b>
<b>Panel A: Italy</b>							
2012	Deloitte	PwC	Ernst & Young	PwC	Ernst & Young	Ernst & Young	NA
2013	Deloitte	KPMG	Ernst & Young	PwC	Ernst & Young	Ernst & Young	NA
2014	Deloitte	PwC	Ernst & Young	PwC	Ernst & Young	Ernst & Young	NA
2015	Deloitte	KPMG	Ernst & Young	PwC	KPMG	Ernst & Young	NA
2016	Deloitte	KPMG	Ernst & Young	PwC	KPMG	Ernst & Young	NA
<b>Panel B: Netherlands</b>							
2012	NA	PWC	Ernst & Young	KPMG	PWC	Deloitte	KPMG
2013	NA	KPMG	Ernst & Young	KPMG	PWC	Deloitte	KPMG
2014	NA	Ernst & Young	KPMG	PWC	PWC	Deloitte	KPMG
2015	NA	Ernst & Young	KPMG	Ernst & Young	PWC	Deloitte	KPMG
2016	NA	Ernst & Young	Ernst & Young	Ernst & Young	Ernst & Young	Deloitte	Ernst & Young
<b>Panel C: United Kingdom</b>							
2012	NA	Deloitte	Ernst & Young	Deloitte	Deloitte	KPMG	NA
2013	NA	Deloitte	Ernst & Young	Deloitte	Deloitte	KPMG	NA
2014	NA	Deloitte	Ernst & Young	Deloitte	Deloitte	KPMG	NA
2015	NA	Deloitte	PWC	Deloitte	Deloitte	KPMG	NA
2016	NA	Deloitte	PWC	PWC	PWC	KPMG	NA

1. Industry categorizations of SIC codes are shown in Table 1.1 Panel B in this Chapter.
2. SIC code 6000-6999 are excluded from this study because of the incomparability of reporting standards between financial service sector and other industries.
3. Specialist are defined as audit firm that gains more than 20% market shares in a specific industry, calculated based on sum of client firms' total assets.

## Control variables

The purpose of this thesis is to examine the association between MAFR in Europe and the Client DQ. To be more precise, this thesis is to investigate if MAFR influences firms' earnings quality, as proxied by DA or financial reporting quality, as proxied by DQ. Firstly, according to Myers et al. (2003), firm size may affect the degree of accounting conservatism which may affect the difference in the change of DA. Also, Carey and Simnett (2006) suggest that larger firms have more negotiation power in different perspectives and have less possibility of going to bankruptcy. Thus, in this study, I employ *SIZE* as one of the control variables. Secondly, firms' leverage can influence the motivation of management to engage in earnings management (Carey & Simnett, 2006). Therefore, leverage (*LEV*) is set as a control variable. Thirdly, according to Johnson et al. (2002), accruals are related to firms' growth. Therefore, the *SALESGROWTH*<sup>5</sup> is included as one of the control variables. Other than that, firms' return on assets (ROA) is also included as the fundamental aspect of earnings.

## Regression model

This thesis is investigating the association between MAFR and clients' DQ. To test the hypotheses, the difference in DisQ Score between different periods of time is calculated for the two measurements and are inputted as dependent variables in the following regression equation:

$$\begin{aligned} \text{CnDisQ} = & \beta_0 + \beta_1 \text{SWITCH} + \beta_2 \text{SPECIALIST} + \beta_3 \text{BIG4} + \beta_4 \text{SIZE} + \beta_5 \text{LEV} \\ & + \beta_6 \text{ROA} + \beta_7 \Delta \text{SALESGROWTH} + \beta_8 \text{YEAR} + \beta_9 \text{COUNTRY} + \varepsilon \end{aligned} \quad (3)$$

$$\begin{aligned} \text{CnDA} = & \beta_0 + \beta_1 \text{SWITCH} + \beta_2 \text{SPECIALIST} + \beta_3 \text{BIG4} + \beta_4 \text{SIZE} + \beta_5 \text{LEV} \\ & + \beta_6 \text{ROA} + \beta_7 \Delta \text{SALESGROWTH} + \beta_8 \text{YEAR} + \beta_9 \text{COUNTRY} + \varepsilon \end{aligned} \quad (4)$$

Where in this regression,

CnDisQ is the change in DisQ Score in period n (C1, C2, C3).

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<sup>5</sup> Calculated as the percentage increase from year *t-1* to year *t*

CnDA is the change in DA in period n (C1, C2, C3)

SWITCH is a dummy variable that equals to 1 if the firm has changed the auditor in that year, 0 otherwise.

Big4 is a dummy variable that equals to 1 if the firm hire one of the Big4 audit firm in that year, 0 otherwise.

SIZE is the natural logarithm of total assets

LEV is calculated as total liabilities divided by total assets

ROA is calculated as net income divided by total assets

$\Delta$ SALESGROWTH is the percentage changed in sales from year t-1 to year t.

YEAR as year dummies.

COUNTRY as country dummies.

### **Validity**

The Predictive Validity Framework is provided in Figure 2 (Libby et al., 2002). Where from the conceptual level, the independent variable is MAFR, this is proxied (in operational level) by observed MAFR within the event window 2012-2016. The dependent variable is the client's DQ where in the operational level is proxied by Disaggregation Quality Score (DisQ) and Discretionary Accruals (DA). Firm Size, leverage, ROA, sales growth and country are used as control variables. The Construct Validity of this study is considered as high, as all proxies used for dependent, independent and control variables are widely used in other studies. The models are also been used widely in the past decade when considering the association between Auditor Rotation and Audit Quality. Moreover, as the links between MAFR and Audit Quality and the link between Audit Quality and DQ are proven, there is a strong base provided for the link between MAFR and DQ, which is regarded as Internal Validity. However, this study cannot be applied to the other samples such as samples for the US or other countries because there are too many institutional difference between European countries and others. Therefore, this study is low in External Validity. As is similar to many other studies, this model also encounters endogeneity issues. There are possible omitted variables other than those which are already included. These omitted variables

can influence the results of the tests. Also, considering all auditor rotations in the event window as MAFR is biased as not all audit firm rotation is caused by the implementation of the MAFR regulation. However, it is still not possible to distinguish precisely the type of audit firm rotation.

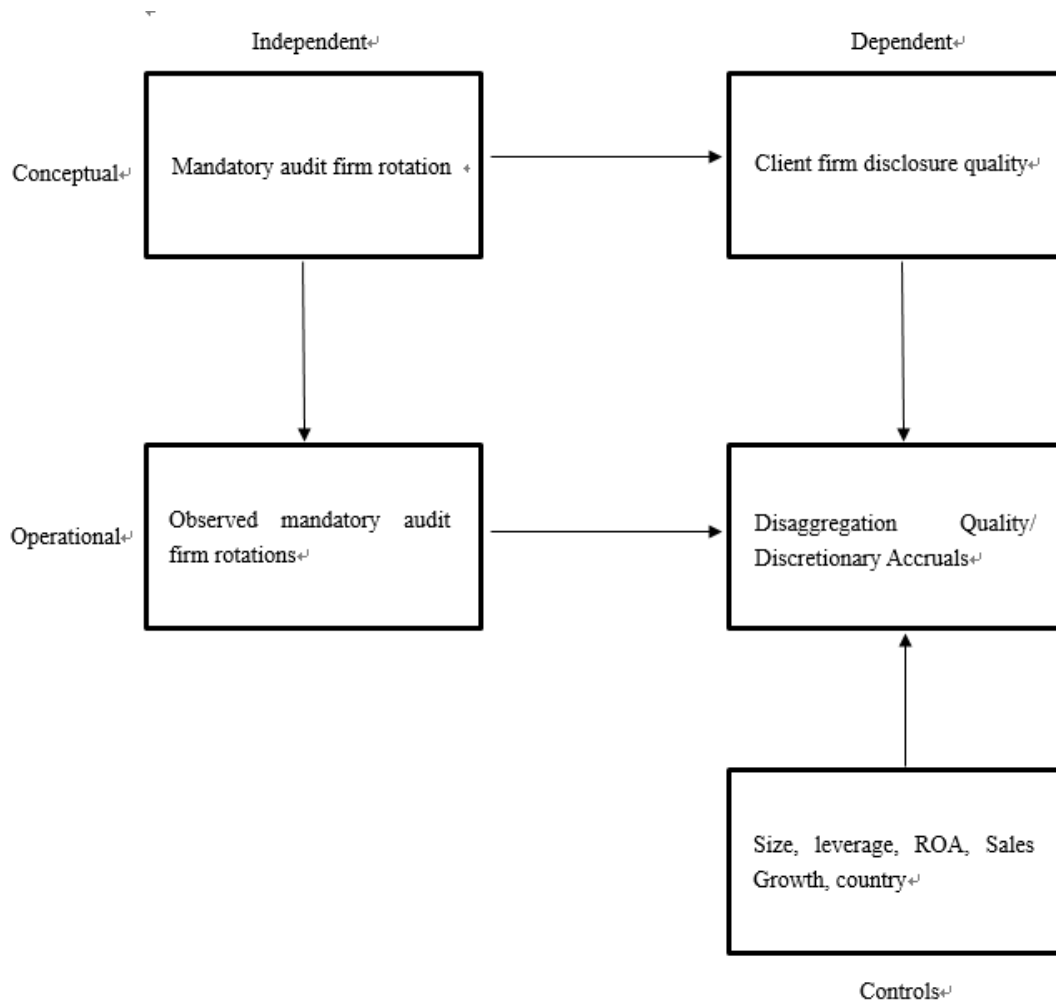


Figure 2. Predictive Validity Framework

### 3.3 Conclusion

This chapter discusses the data retrieving standards and processes. In total, there are 1,685 total firm-year observations among three different European countries from 2012 till 2016. This chapter also explained why specific sample firm-year observations are excluded (financial service firms for example). Later in this chapter, based on previous academic literature and relevant theories, dependent, independent and control

variables are defined and explained. Moreover, the regression model is demonstrated and the sample descriptive statistics are shown in tables.

## Chapter 4: Results and Analysis

In this chapter, more detailed descriptive statistics of variables will be provided. Thereafter, results will be provided based on the implementation of econometric models as discussed in Chapter 3. Also, necessary analysis will be provided especially for some unordinary results. The tests results of hypotheses will be discussed. Lastly, in order to gain more insight into the tests, a robustness test based on each sample country will be provided.

### 4.1 Descriptive Statistics

As is discussed in Chapter 3, CnDisQ and CnDA are used as dependent variables, n is substituted by different time period defined in Chapter 3 variable definitions. Table

<b>Table 3.1 – Descriptive Statistics of Variables</b>								
<i>Descriptive statistics of dependent, independent and control variables</i>								
<b>Variable</b>	<b>N</b>	<b>Mean</b>	<b>p25</b>	<b>Median</b>	<b>p75</b>	<b>Std. Dev</b>	<b>Min</b>	<b>Max</b>
<b>Panel A: Dependent Variables</b>								
C1DisQ	1327	-0.581	-1	0	1	6.965	-84	28
C2DisQ	1327	-0.581	-1	0	1	6.965	-84	28
C3DisQ	983	-0.585	-1	0	2	8.282	-87	30
C1DA	1335	0.001	-0.022	0.000	0.021	0.176	-2.895	2.930
C2DA	1335	0.001	-0.022	0.000	0.021	0.176	-2.895	2.930
C3DA	992	0.006	-0.023	0.003	0.030	0.179	-3.026	2.549
<b>Panel B: Independent Variables</b>								
SWITCH	1685	0.105	0	0	0	0.306	0	1
BIG4	1685	0.884	1	1	1	0.321	0	1
SPECIALIST	1685	0.294	0	0	1	0.456	0	1
<b>Panel C: Control Variables</b>								
SIZE	1685	6.362	5.245	6.451	7.507	1.844	1.570	11.260
LEV	1683	0.607	0.447	0.590	0.736	0.231	0.109	1.425
ROA	1683	0.005	0.028	0.031	0.073	0.105	-0.514	0.319
△SALEGROWTH	1656	0.334	0.051	-0.036	0.033	0.235	-0.758	1.147

Definition of variables are discussed in Chapter 3.

3.1 provides the descriptive statistics of variables. The amount of change in DisQ Score decrease over the three periods. DQ measures the count of total non-missing Compustat annual report items in Balance Sheet and Income Statements. A higher DQ indicates a higher DQ because the level of disclosure (number of non-missing items) is higher. Thus, in Table 3.1, it shows a negative mean of CnDisQ, this has indicated that the DQ

of the firm has decreased within the 3-year research period of auditor rotation. On the other hand, DA measure the level or likelihood of real earnings management of the firm. A higher DA indicates a higher level of real earnings management. In Table 3.1, DA has increased over the research period of auditor rotation, which in line with DQ as proxy, that DQ declined over the research period of auditor switch. According to the descriptive statistics, it shows that 10.5% of all firm-year observations are subjected to auditor rotation. Also, statistics shows that of all these firm-year observations, 88.4% of the companies are audited by Big4 auditors (PwC, KPMG, EY and Deloitte). 29.4% of the companies are audited by industry specialist auditor.

**Table 3.2 – Descriptive Statistics of Variables per Country**

<b>Panel A: SIZE per Country</b>								
Country	N	Mean	p25	Median	p75	Std. Dev	Min	Max
United Kingdom	633	7.020	6.321	6.979	7.740	1.045	3.652	10.74
Italy	657	5.851	4.739	5.718	6.727	1.787	1.570	11.89
Netherlands	395	6.252	4.306	6.351	8.340	2.514	1.262	13.07
Total	1685	6.385	5.245	6.451	7.507	1.844	1.570	13.07
<b>Panel B: BIG4 per Country</b>								
Country	N	Mean				Std. Dev	Min	Max
United Kingdom	633	0.975	1	1	1	0.157	0	1
Italy	657	0.837	1	1	1	0.370	0	1
Netherlands	395	0.815	1	1	1	0.389	0	1
Total	1685	0.884	1	1	1	0.321	0	1

## 4.2 Test of Hypotheses

The hypotheses, which are defined and explained in Chapter 2, are tested by mixed-effect multilevel regression analysis using two different proxy for DQ (DQ and DA). Before testing the hypotheses, the correlation between variables are tested in order to control for multicollinearity issues. Multicollinearity issue arise when the correlation between the variables are higher than 0.7. Variables that correlated with each other can significantly influence the result of the test of hypotheses in this research.

**Table 4 – Correlations***Correlations among the independent and control variables*

	SWITCH	BIG4	SPECIALIST	SIZE	LEV	ROA	SALESGROWTH
SWITCH	1						
BIG4	-0.047*	1					
SPECIALIST	0.001	0.234***	1				
SIZE	-0.0190	0.413***	0.167***	1			
LEV	0.021	-0.032	0.074***	0.066***	1		
ROA	-0.025	0.173***	-0.002	0.190***	-0.276***	1	
△SALEGROWTH	-0.003	-0.004	0.035	0.021	-0.120***	0.103***	1

Table 4 shows the correlations between the variables. Table 4 demonstrated that no correlation is higher than 0.7. This indicates that there are no multicollinearity problems, which allows for further hypotheses testing. However, in this correlation, it shows a negative significant association between Firm Leverage (LEV) and firm Return on Assets (ROA). An alternative explanation, in this case, could be that less leveraged firms have more control on its own working capital and have more independence on financial decision making which lead to less debt interest payable and a higher return on assets especially in the case of a wise management decision. Other than this correlation, there is no correlation that has abnormal patterns. To test the hypotheses, two different proxies (DQ and DA) are selected and implemented into the regression described in Chapter 3. Therefore, for three periods (C1-C3), there are in total 6 different regression analyses. The resulted are put into a matrix below in Table 5.



**Table 5 – DQ/DA Analyses**

Mixed-effect multilevel regression analyses using DQ and DA as dependent variable						
	(1)	(2)	(3)	(4)	(5)	(6)
	C1DisQ	C2DisQ	C3DisQ	C1DA	C2DA	C3DA
SWITCH	0.440 (0.458)	-1.399* (0.056)	-2.140** (0.013)	0.023 (0.106)	-0.002 (0.885)	0.009 (0.539)
BIG4	0.790 (0.354)	-0.260 (0.767)	-0.801 (0.497)	-0.025 (0.216)	0.037* (0.051)	0.046** (0.020)
SPECIALIST	0.666 (0.170)	0.738 (0.164)	0.860 (0.207)	0.003 (0.805)	-0.007 (0.542)	-0.016 (0.157)
SIZE	-0.270 (0.163)	-0.325 (0.113)	-0.623** (0.020)	-0.002 (0.599)	0.004 (0.369)	-0.005 (0.238)
LEV	-0.819 (0.465)	-1.124 (0.333)	-0.763 (0.619)	0.095*** (0.000)	0.036 (0.155)	0.112*** (0.000)
ROA	-4.814* (0.082)	-1.707 (0.545)	-0.911 (0.811)	0.696*** (0.000)	-0.884*** (0.000)	-0.211*** (0.001)
△SALEGROWTH	1.750* (0.068)	0.769 (0.393)	3.232** (0.016)	-0.050** (0.033)	0.102*** (0.000)	0.027 (0.229)
_cons	-4.765 (0.184)	-0.117 (0.975)	-3.387 (0.485)	-0.048 (0.572)	0.008 (0.926)	-0.007 (0.932)
<i>N</i>	1304	1304	967	1303	1314	976
Adjusted R <sup>2</sup>	0.043	0.051	0.178	0.383	-0.036	0.279
WaldChi2-statistic	1.318	1.375	2.030	0.141	0.736	3.079
Prob > Chi2	0.006***	0.002***	0.000***	1.000	0.995	0.000***

p-values in parentheses

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

*H1: DQ is higher for firms that hire Big4 audit firms as their auditor.*

Hypothesis 1 expects that DQ of the client firm will be higher if the firm hire one of the Big4 audit firm as their auditor. Table 5 shows the regression analyses using DQ and DA as proxies for DQ. Using DQ as proxy, the results of DisQ Score analysis indicate that in the first change period (C1DisQ), hiring Big4 auditors, measured by variable BIG4 has a positive effect on DQ. However, in the following periods (C2DisQ and C3DisQ), the association between DQ and BIG4 become negative, which indicates that hiring a BIG4 auditor has a negative effect on DQ in the year after the auditor change (t+1) and when comparing the DQ between the year after the change (t+1) and the year before the change (t-1). However, these results and effects are not statistically significant. Thus, hypothesis 1 is rejected based on these results.

The results of DA analysis are different. The results show that during the first change period (C1DA), there is a negative association between hiring BIG4 as auditor and firm's DA. This has indicated that hiring one of the Big4 auditors, when considering the immediate effect, has a positive association with DQ. This is based on the assumption that a lower amount of firm's DA will increase the financial reporting quality and earnings quality (DQ) of the firm. However, the result is not significant. In the later period (C2DA), results show a positive significant (at 10%) effect on DA which indicates a decrease in DQ. When looking at C3DA, the results show a positive and significant (at 5%) association between BIG4 and DQ of the firm. Based on the results above, hypothesis 1 is also rejected.

In general, the two regression analyses, using two different proxies for DQ, shows a mixed effect of hiring a Big4 auditor on the firm's DQ. Two regressions all shows that when hiring Big4 auditor as their auditor, the immediate effect of the auditor switch will result in a higher DQ (positive DQ and negative DA). However, in the year after the auditor switch (C2 and C3), results show a negative association between the Big4 auditor and DQ (negative DQ and positive DA). Thus, evidence is mixed. To conclude based on the two analyses, Hypothesis 1 is rejected. Although some of these results are not significant, they provide some indication for the research. For example, over a short time period, the DQ is positively associated with Big4 auditor.

*H2: DQ is higher for firms that hire an industry specialist audit firm as their auditor.*

The second hypothesis expects that hiring an industry specialist auditor will increase the DQ of the firm. This expectation is based on the theory that industry specialist auditors are more equipped with industry specific knowledge and thus leader to higher audit quality and financial reporting quality (DQ). Using DisQ Score as proxy, the results show that in general, over all three change periods, variable SPECIALIST shows a positive association with DisQ Score. This indicates that hiring an industry specialist auditor will result in an increase in DQ. This is in line with expectation. However, the results are not statistically significant and thus cannot provide support for H2. To find out more exactly the reason why the statistics are insignificant, a robustness

test will be performed in the later section in this chapter. On the other hand, the results in DA analysis show a different image. The association between hiring an industry specialist (SPECIALIST) and C1DA is positive, which indicates that the DQ has decreased during the year when the firm hires an industry specialist auditor. However, for a later period, the association between SPECIALIST and C2DA/ C3DA becomes negative, which indicates that in the year after the auditor change (t+1), comparing with the year of change (t) and the year before the change (t-1), the DA decreased and thus a higher DQ. Therefore, the results are in line with the expectation. But again, these results are all not statistically significant. Lastly, H2 is rejected.

*H3: DQ is higher after the firm has changed its auditor due to the implementation of MAFR in Europe.*

Hypothesis 3 expects that a switch in auditor during the research event window (2012-2016) will result in an increase in DQ. This expectation is based on the theory that the European Union has been seriously discussed and have intension on applying the MAFR since 2012 and later on the MAFR regulation go into action in 2014. Thus, all auditor switch within period are classified as MAFR. The assumption behind MAFR is that MAFR can increase the audit quality and financial reporting quality because of a higher auditor independence. The results are showed in Table 5. Using DisQ Score as proxy, results show that right after the auditor switch (C1DisQ), there is a positive association with DisQ Score. This indicates that during the first year right after the auditor switch, the DQ of the firm has increased. However, this result is not statistically significant. Moreover, in the later period (C2DisQ and C3DisQ), using the DisQ Score of the year after the auditor change to compare with the year of change (t) and the year before the change (t-1), there is a negative association with DisQ Score and the auditor switch (significant at 5%). This indicates that firm's DQ will decrease after the first year of the auditor switch.

Using DA as proxy for DQ, results show a positive association between auditor switch (SWITCH) and C1DA. This result indicates the immediate effect of the auditor switch is an increase in DA and thus a decrease in earnings quality and financial

reporting quality (DQ). When comparing the year after the change (t+1) and the year of change (t), the result shows a slightly negative association between the auditor switch and DQ. When comparing the year after the change (t+1) and year before the change (t-1), the result shows that there is a positive association between DA and the auditor switch. This indicates that the DQ the year after the change has decreased (because of an increase in DA). However, all these statistics are not significant, but it provides some indication for the research. Therefore, Hypothesis 3 is rejected.

### 4.3 Robustness Test

In the previous sections, the results for different regression analyses are presented and discussed. In general, evidence for hypothesis 1 to 3 is mixed and many results are insignificant. There are many reasons why results are insignificant. One of which is the test sample composition. In this study, the test sample includes three European countries

	(1) C2DisQ UK	(2) C2DisQ Italy	(3) C2DisQ NL	(4) C3DisQ UK	(5) C3DisQ Italy	(6) C3DisQ NL
SWITCH	0.329 (0.861)	-3.251*** (0.003)	-1.737** (0.024)	-1.105 (0.632)	-4.490*** (0.000)	-1.535* (0.086)
BIG4	-1.969 (0.454)	0.608 (0.663)	1.790 (0.170)	-2.019 (0.609)	0.291 (0.861)	1.589 (0.355)
SPECIALIST	0.858 (0.468)	1.806** (0.049)	-0.134 (0.865)	0.923 (0.557)	1.947* (0.067)	0.663 (0.518)
SIZE	-0.363 (0.632)	-0.323 (0.345)	-0.212 (0.434)	-0.365 (0.728)	-0.880** (0.031)	-0.326 (0.343)
LEV	-0.123 (0.956)	-2.811 (0.207)	1.287 (0.502)	2.143 (0.480)	-3.953 (0.134)	0.556 (0.846)
ROA	9.274 (0.196)	-18.515*** (0.000)	6.565* (0.062)	17.811* (0.076)	-19.288*** (0.001)	2.845 (0.578)
△SALEGROWTH	0.903 (0.703)	-0.681 (0.580)	0.201 (0.852)	3.746 (0.289)	0.723 (0.668)	1.893 (0.258)
_cons	1.569 (0.808)	-0.495 (0.896)	-4.144 (0.164)	5.391 (0.578)	0.283 (0.949)	-8.329* (0.075)
<i>N</i>	498	514	292	369	381	217
<i>Adjusted R</i> <sup>2</sup>	0.249	0.312	0.232	0.309	0.569	0.424
WaldChi2-statistic	1.462	1.966	0.954	1.364	3.965	1.571
Prob > Chi2	0.007***	0.000***	0.583	0.029**	0.000***	0.012**

*p-values in parentheses*

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Country code: United Kingdom (UK), Italy (Italy), Netherlands (NL)

which have many difference in country-specific characteristics. Therefore, in order to test in a more accurate way. The regression models are rerun separately with different countries. More specifically, period C2 and C3 are taken out for further analysis as in these period results for DA and DQ analyses are worth discussing according to the previous sections.

	(1)	(2)	(3)	(4)	(5)	(6)
	C2DA	C2DA	C2DA	C3DA	C3DA	C3DA
	UK	Italy	NL	UK	Italy	NL
SWITCH	-0.018 (0.272)	-0.008 (0.814)	0.027 (0.267)	-0.028 (0.170)	0.038 (0.150)	0.016 (0.524)
BIG4	0.013 (0.569)	0.083** (0.049)	0.021 (0.616)	-0.016 (0.659)	0.045 (0.235)	-0.008 (0.872)
SPECIALIST	-0.013 (0.220)	0.021 (0.457)	-0.010 (0.691)	-0.019 (0.166)	-0.015 (0.544)	-0.019 (0.510)
SIZE	-0.020*** (0.002)	0.016 (0.108)	0.010 (0.228)	-0.011 (0.221)	0.005 (0.584)	-0.004 (0.649)
LEV	0.031 (0.107)	-0.078 (0.246)	0.146** (0.016)	0.065** (0.016)	0.004 (0.941)	0.145* (0.068)
ROA	-0.565*** (0.000)	-1.903*** (0.000)	-0.536*** (0.000)	-0.037 (0.680)	-0.737*** (0.000)	-0.024 (0.867)
△SALEGROWTH	0.037* (0.069)	0.174*** (0.000)	0.038 (0.261)	0.003 (0.918)	0.112*** (0.004)	-0.068 (0.148)
_cons	0.248*** (0.000)	-0.162 (0.161)	-0.009 (0.926)	0.011 (0.896)	-0.037 (0.718)	0.060 (0.644)
<i>N</i>	498	521	295	369	387	220
<i>Adjusted R</i> <sup>2</sup>	0.236	0.601	0.183	0.163	0.646	0.257
WaldChi2-statistic	1.357	6.642	0.716	0.591	5.588	0.750
Prob > Chi2	0.025**	0.000***	0.949	0.998	0.000***	0.910

*p-values in parentheses*

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Country code: United Kingdom (UK), Italy (Italy), Netherlands (NL)

Table 6.1 shows the country-specific results for period C2 and C3 of DisQ Score Analysis. The results show that there is a negative significant association between

auditor switch and the change in DQ (both C2 and C3) for Italy (significant at 1%). Also, there is a negative significant association between auditor switch and the change in DQ (both C2 and C3) for the Netherlands (significant at 5% for C2 and 10% for C3). For the UK, results are insignificant. With regards to industry specialist, results of Italy show a significant positive association between the variable SPECIALIST and C2DisQ/C3DisQ (at 10%). Moreover, for control variables, results are country-specific, which indicate that there may be variables omitted for a certain country, yet it is still unknown. The rest of the results remains consistent with prior analysis. Except for the Netherlands, all other countries have significant results in Wald Chi-square statistics, which means that in general all variables combined shows a significant effect on the firm's DQ.

Table 6.2 shows the country-specific results for period C2 and C3 of DA Analysis. In general, the association between independent variables and dependent variables remains consistent. Under DA regression analysis, none of these three countries have a significant association between independent variables and firm's DQ as proxied by DA. In terms with control variables, most of the results are consistent with prior general regression analysis, except results from the Netherlands (NL) are clearly not significantly associated between SALESGROWTH and DA. In general, whether all variables combined shows a significant association with DA is countries specific and possibly subject to potential omitted variables. After the robustness test, most of the conclusion from the tests of hypotheses remains. However, it can be also worth noticing that the association between auditor rotation and DQ is influence in many factors, especially country-specific characteristics. An example could be the power of reinforcing the laws and regulations, general transparency of the financial reporting.

#### **4.4 Analysis and Interpretation**

H1 expects that the DQ of the client firm will be higher if the firm hire one of the Big4 audit firm as their auditor. This assumption is based on that Big4 auditors are in general better in reputation and they are more motivated to keep their reputation by improving the financial reporting quality and providing a better audit service. However,

the results do not give support and hence Hypothesis 1 is rejected. Although this result is not aligned with the expectation of this study, it is still not surprised. As there are also many other studies argue that Big4 audit firms does not offer a better service than the others. Evidence is mixed in general. It can be explained that although in general, people have intuition that Big4 audit firms offer a higher standard and better service, yet bigger firm can also result in inflexibility, more familiarity with client etc. These problems can result in a lower financial reporting quality.

H2 expects that hiring an industry specialist auditor will increase the DQ of the firm. This expectation is based on the theory that industry specialist auditors are more equipped with industry specific knowledge and thus lead to a higher audit quality and financial reporting quality (DQ). According to the results from the regression analyses, in general directions are aligned with expectation. However, results are not statistically significant. Thus, H2 is rejected. However, looking at robustness test, results show that for Italy there is a positive significant association between DisQ Score and Industry Specialists whereas in the UK and the Netherlands do not have such associations. This has raised attention that there may be country specific factors that may influence this association. A possible explanation can be the fact that Italy has adopted MAFR for decades where regulation and legal environment is more complete. Also, certain type of auditors are more experienced in certain industries.

H3 expects that a switch in auditor during 2012-2016 will result in an increase in DQ. This expectation is based on the theory that the European Union had seriously discussed and had intension to apply the MAFR since 2012 and later on the MAFR regulation went into action in 2014. Thus, all auditor switch within this period are classified as MAFR. The assumption behind MAFR is that MAFR can increase the audit quality and financial reporting quality because of a higher auditor independence. Evidence is in general not in line with expectation that DQ of the firm will be higher after the MAFR. However, there is also not enough evidence to accept the hypothesis as some of the results are not statistically significant. Hence, Hypothesis 3 is rejected based on the results. Yet these results provide an indication for the change in DQ after the implementation of MAFR. An alternative explanation could be that within a short

time period after an auditor switch, similar to audit quality, DQ will also decrease because the new auditor lack client-specific knowledge and this will result in more time and effort in studying and investigating relevant client-specific knowledge and thus lower audit quality and DQ.

The control variables are also worth noticing. Especially in the DA regression analysis, firm leverage (LEV), Return on Assets (ROA) all show significant association with firm's DA. Sales growth (SALESGROWTH) also shows significant effect on C1DA and C2DA. This indicates that the degree of firm leverage, and company performance have a significant effect on the firm's DA. On the other hand, it is worth noticing that firm size (SIZE) is not associated with firm's DQ, which indicates that the size of the company does not influence the amount of DA. Under the DQ regression analysis, results show that firm size (SIZE), degree of leverage (LEV), Return of Assets (ROA) and sales growth (SALESGROWTH) are significantly associated with C3DisQ, which compares the DisQ Score between the year before the change and the year after the change. This indicates that firm leverage, performance can influence the firm's DQ using DisQ Score as measurement. However, the reason why these control variables are not associated with the other periods (C1 or C2) is unknown.

Overall, looking at the power of the regression analyses, the Wald Chi-squared statistics is used to test the overall significance of the regression model. Results show that three regressions under DQ analysis are significant at 1%, whereas under DA analyses, only one (C3DA) regression is significant (at 1%). A significant result indicates that the all variables combined in this model have in general a significant association with the dependent variable (DQ of the firm).

## **4.5 Conclusion**

This chapter provides the results of the tests of hypotheses. In general, it is surprised to see that using the new method (DisQ Score) as proxy, many results are significant whereas using the rather traditional approach (Discretionary Accruals) as proxy, none of the tests are significant. Also, statistics shows that the DA model in



general is not suitable enough to measure firm DQ. In the robustness test, it is shown that sample distribution is rather country dependent and there may be more country specific characteristic factors that can influence the DQ of the firm. Based on these results, all hypotheses are rejected. Although in general evidences are mixed and many of the results are insignificant, yet it provides meaning indication and new insights.

## **Chapter 5: Conclusions, Limitations and Recommendations**

### **5.1 Conclusion**

The goal of this study is to investigate the association between MAFR and Client Firm DQ. There has been a long debate among different countries about whether to implement MAFR or MAPR. After the Enron incidence, the United States first implemented the Sarbanes-Oxley Act (SOX) in 2002, which includes MAPR as main element. Other countries, which includes the UK and the Netherlands, also implement similar MAPR regulation. Yet in 2014, the European Commission (E.C.) decided to perform an audit reform in the EU, which involves MAFR as main element ("Auditing of companies' financial statements", 2017). The debate whether to implement MAFR is beneficial is still going on. Prior researches have demonstrated in various method the association between MAFR and Audit Quality. However, there is still few relevant discussions on the association between MAFR and DQ. Also, after the implementation of MAFR in Europe, there is still no research analyzing the actual effect of MAFR. Thus, the research question of this study is whether the implementation of MAFR influences the client firm's DQ.

To investigate this question, a research sample consisting of three different countries from the period 2012 to 2016 is collected. The data includes hand collecting auditor data, and correspondent firm fundamentals data of those years. To measure the dependent variable (DQ), two proxies are selected. One is DisQ Score, brought up by Chen et al. (2015), which measures the count of non-missing Compustat items from the firm's annual financial statements. The more items presented indicates a higher level of DQ. The other proxy selected is the DA, based on the Jones model (1991), which is widely used to measure firm's earnings quality, audit quality and DQ. A higher level of DA indicates a bigger possibility of earnings management and thus lead to a lower DQ.

The results of this study show that in general, evidence is mixed. All hypotheses are rejected. Moreover, through this study, results also show an indication of the association. An auditor switch under MAFR shows in general within a short time period

an negative association with DQ. And that there is not enough support for the assumptions that hiring Big4 audit firm or hiring an industry specialist auditor can enhance the client firm's DQ. Again, although indications are provided results are mainly insignificant. After the robustness test, the results show that not only the general independent variables could influence the DQ, there may be other country-specific omitted variables which can influence the results.

To answer the research questions, it can be concluded that there is an association between MAFR and the firm DQ. However, the association is mixed and depends on the measurement itself (choice of dependent variable) and specific country. Also, there is an association between industry specialist auditor and firm DQ. However, again this is different per dependent variable. Lastly, there is no association between hiring Big4 auditor and firm DQ. Besides, this study also provides interesting insights into what is the actual effect of the implementation of EU Directive of audit reform in 2014. Comparing with other studies investigating MAFR and audit quality, this study investigates the association between MAFR and DQ, which is from another perspective, using a new and a distinguished method to measure DQ.

In all, this study provides some useful insights into the actual effect of implementation of MAFR in Europe. Despite the mixed evidence, this study has given some indications regarding various effect of auditor rotation on DQ. Also, this study has adopted a new measure of DQ which captures the 'finess' of the financial report. Results shows that the new measurement capture the effects better than the traditional accruals model. For further researches, samples size could be larger by adopting a longer window for the research. Although for now due to data availability, data is capped in 2016, yet this problem can be solved by re-investigate this research after a few years. Also, as many of the variables shows insignificant results, this could mean that there are potentially omitted variables. Thus, future researches could incorporate other variables to increase the explanation power of the results and conclusions.

## 5.2 Limitations and Recommendations

Similar to many other studies concerning auditor rotation, this study also involves some limitations. These limitations could potentially or directly influence the result and conclusion of this study. Firstly, it is worth noticing of the data availability. The most important issue is year observation. This study only can analyze observation from 2012 till 2016, which means the research window is not long enough for the period after the auditor rotation. Thus, a short period of time can be analyzed. As is discussed in the previous chapters, this study involves hand collecting auditor data. With the help of Orbis database, data can be one by one retrieved, this has avoid going on each company website and check according to their annual reports. Also, for non-English speaking countries, data accuracy is higher by using Orbis database. However, there are a considerable amount of data on Orbis is missing or not updated and this requires manual search. In general, over the four years, there are only 1,685 firm-year observations for this study, which is very small. A small sample can influence the significance of the test results, as well as the overall explanation power of the tests. Moreover, according to the descriptive statistics, there are only 10.5% of the total firm-year observation switch their auditor. As the observations are not large, the effect could be influenced by other non-switch years.

Regarding the regression models, there are many limitations. Firstly, as is widely known for this sort of researches, there is no such definite way of measuring DQ. As DQ is hard to quantify, different proxies are used. However, different proxies capture different aspect of DQ and this is subject to many characteristics as well. For instance, this study adopted DA model as measure for DQ. But there are many other literatures using the same DA to measure firm audit quality, earnings management etc. Thus, the measurement of dependent variable cannot capture the full image of the DQ itself. Moreover, when measuring independent variables (switches, big4 and specialist), dummy variables are used, which only consist of two possible values. These measurements cannot be extended with in-depth analysis or explanations. Lastly, the endogeneity issue cannot be ignored that there are many other omitted variables in this

analysis which can influence the results, these variables shall be investigated and included in the further researches.

## Bibliography

- Adams, M. (1994). Agency Theory and the Internal Audit. *Managerial Auditing Journal*, 9(8), 8-12. <http://dx.doi.org/10.1108/02686909410071133>
- Ali, A., Ream, T., & Rana, A. (2011). Do audit tenure and firm size contribute to audit quality?: Empirical evidence from Jordan. *Managerial Auditing Journal*, 26(4), 317-334.
- Auditing of companies' financial statements*. (2017). European Commission. Retrieved 4 April 2017, from [https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/auditing-companies-financial-statements\\_en#audit-reform-in-the-eu](https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/auditing-companies-financial-statements_en#audit-reform-in-the-eu)
- Barr, R., & Chang, S. (1993). Outsourcing Internal Audits: A Boon or Bane?. *Managerial Auditing Journal*, 8(1). <http://dx.doi.org/10.1108/02686909310023515>
- Blouin, J., Grein, B., & Rountree, B. (2007). An Analysis of Forced Auditor Change: The Case of Former Arthur Andersen Clients. *The Accounting Review*, 82(3), 621-650. <http://dx.doi.org/10.2308/accr.2007.82.3.621>
- Boone, J., Khurana, I., & Raman, K. (2008). Audit Firm Tenure and the Equity Risk Premium. *Journal Of Accounting, Auditing & Finance*, 23(1), 115-140. <http://dx.doi.org/10.1177/0148558x0802300107>
- Botosan, C., & Plumlee, M. (1997). Disclosure Level and Expected Cost of Equity Capital: An Examination of Analysts' Rankings of Corporate Disclosure and Alternative Methods of Estimating Expected Cost of Equity Capital. *SSRN Electronic Journal*. <http://dx.doi.org/10.2139/ssrn.224385>
- Brody, R., & Moscovice, S. (1998). Mandatory Auditor Rotation. *The National Public Accountant*, 43(3), 32-36.
- Bruynseels, L., & Cardinaels, E. (2014). The Audit Committee: Management Watchdog or Personal Friend of the CEO?. *The Accounting Review*, 89(1), 113-145. <http://dx.doi.org/10.2308/accr-50601>
- Cahan, S., & Zhang, W. (2006). After Enron: Auditor Conservatism and Ex-Andersen Clients. *The Accounting Review*, 81(1), 49-82. <http://dx.doi.org/10.2308/accr.2006.81.1.49>
- Cameran, M., Prencipe, A., & Trombetta, M. (2016). Mandatory Audit Firm Rotation and Audit Quality. *European Accounting Review*, 25(1), 35-58. <http://dx.doi.org/10.1080/09638180.2014.921446>
- Carey, P., & Simnett, R. (2006). Audit Partner Tenure and Audit Quality. *The Accounting Review*, 81(3), 653-676. <http://dx.doi.org/10.2308/accr.2006.81.3.653>
- Chen, C., Lin, C., & Lin, Y. (2008). Audit Partner Tenure, Audit Firm Tenure, and Discretionary Accruals: Does Long Auditor Tenure Impair Earnings Quality?. *Contemporary Accounting Research*, 25(2), 415-445. <http://dx.doi.org/10.1506/car.25.2.5>

- Chen, S., Miao, B., & Shevlin, T. (2015). A New Measure of DQ: The Level of Disaggregation of Accounting Data in Annual Reports. *Journal of Accounting Research*, 53(5), 1017-1054. <http://dx.doi.org/10.1111/1475-679x.12094>
- Chi, W., Huang, H., Liao, Y., & Xie, H. (2009). Mandatory Audit Partner Rotation, Audit Quality, and Market Perception: Evidence from Taiwan. *Contemporary Accounting Research*, 26(2), 359-391. <http://dx.doi.org/10.1506/car.26.2.2>
- Chiang, H. & Lin, S. (2012). Auditor's Industry Specialization and DQ of IAS No. 39-Related Accounts. *Journal of Applied Finance & Banking*, 2(2), 59-98.
- Coates, J. (2007). The Goals and Promise of the Sarbanes–Oxley Act. *Journal of Economic Perspectives*, 21(1), 91-116. <http://dx.doi.org/10.1257/jep.21.1.91>
- Coleman, I., & Eccles, R. (1997). Pursuing value: Reporting gaps in the United Kingdom. *Pricewaterhousecoopers*.
- Church, B., & Zhang, P. (2006). A Model of Mandatory Auditor Rotation. *SSRN Electronic Journal*. <http://dx.doi.org/10.2139/ssrn.874884>
- Daniels, B., & Booker, Q. (2011). The effects of audit firm rotation on perceived auditor independence and audit quality. *Research In Accounting Regulation*, 23(1), 78-82. <http://dx.doi.org/10.1016/j.racreg.2011.03.008>
- Davide Scaltrito, (2015). Assessing DQ: A Methodological Issue. *Journal of Modern Accounting and Auditing*, 11(9). <http://dx.doi.org/10.17265/1548-6583/2015.09.004>
- DeAngelo, L. (1981). Auditor independence, 'low balling', and disclosure regulation. *Journal of Accounting and Economics*, 3(2), 113-127. [http://dx.doi.org/10.1016/0165-4101\(81\)90009-4](http://dx.doi.org/10.1016/0165-4101(81)90009-4)
- Dechow, P., Hutton, A., Kim, J., & Sloan, R. (1995). Detecting Earnings Management. *SSRN Electronic Journal*. <http://dx.doi.org/10.2139/ssrn.1735168>
- DeFond, M., & Zhang, J. (2014). A Review of Archival Auditing Research. *SSRN Electronic Journal*. <http://dx.doi.org/10.2139/ssrn.2411228>
- Deis, D., & Giroux, G. (1992). Determinants of Audit Quality in the Public Sector. *The Accounting Review*, 67(3), 462-479.
- Donaldson, L., & Davis, J. (1991). Stewardship Theory or Agency Theory: CEO Governance and Shareholder Returns. *Australian Journal Of Management*, 16(1), 49-64. <http://dx.doi.org/10.1177/031289629101600103>
- Dopuch, N. & Simunic, D. (1982). Competition in auditing : An Assessment. *Fourth Symposium on Auditing Research*, 401-450.
- Dopuch, N., King, R., & Schwartz, R. (2001). An Experimental Investigation of Retention and Rotation Requirements. *Journal Of Accounting Research*, 39(1), 93-117. <http://dx.doi.org/10.1111/1475-679x.00005>

- Dunn, K. & Mayhew, B. (2004). Audit Firm Industry Specialization and Client DQ. *Review of Accounting Studies*, 9(1), 35-58. <http://dx.doi.org/10.1023/b:rast.0000013628.49401.69>
- EY, (2013). *Q&A on mandatory firm rotation*. Ernst & Young. Retrieved from [http://www.ey.com/Publication/vwLUAssets/EY-qa-on-mandatory-firm-rotation-march-2013/\\$FILE/EY-qa-on-mandatory-firm-rotation-march-2013.pdf](http://www.ey.com/Publication/vwLUAssets/EY-qa-on-mandatory-firm-rotation-march-2013/$FILE/EY-qa-on-mandatory-firm-rotation-march-2013.pdf)
- Ewelt-Knauer, C., Gold, A., & Pott, C. (2012). *What do we know about mandatory audit firm rotation?* Edinburgh: The Institute of Chartered Accountants of Scotland. Retrieved from [https://www.icas.com/\\_data/assets/pdf\\_file/0016/100843/ICAS-Mandatory-Audit-Firm-Rotation-Report.pdf](https://www.icas.com/_data/assets/pdf_file/0016/100843/ICAS-Mandatory-Audit-Firm-Rotation-Report.pdf)
- Farmer, T., Rittenberg, L., & Trompeter, G. (1987). An investigation of the impact of economic and organizational factors in auditor independence. *Auditing: A Journal of Practice & Theory*, 7, 1-14.
- Financial Reporting Council, (2014). *True and Fair*. London: Financial Reporting Council. Retrieved from <https://www.frc.org.uk/FRC-Documents/Accounting-and-Reporting/True-and-Fair-June-2014.pdf>
- Fried, D. & Schiff, A. (1981). CPA Switches and Associated Market Reaction. *The Accounting Review*, 326-341.
- Geisler, C., & Low, K. (2008). How Do Various Forms of Audit Rotation Affect Audit Effectiveness?. *American Accounting Association Auditing Section Midyear Meeting*.
- Geiger, M., & Raghunandan, K. (2002). Auditor Tenure and Audit Reporting Failures. *AUDITING: A Journal of Practice & Theory*, 21(1), 67-78. <http://dx.doi.org/10.2308/aud.2002.21.1.67>
- Ghosh, A., & Moon, D. (2005). Auditor Tenure and Perceptions of Audit Quality. *The Accounting Review*, 80(2), 585-612. <http://dx.doi.org/10.2308/accr.2005.80.2.585>
- Gul, F., Fung, S., & Jaggi, B. (2009). Earnings quality: Some evidence on the role of auditor tenure and auditors' industry expertise. *Journal Of Accounting And Economics*, 47(3), 265-287. <http://dx.doi.org/10.1016/j.jacceco.2009.03.001>
- Hatfield, R., Jackson, S., & Vandervelde, S. (2008). The Effects of Prior Auditor Involvement and Client Pressure on Proposed Audit Adjustments. *Behavioral Research In Accounting*, 23(2), 117-130. <http://dx.doi.org/10.2308/bria-10064>
- Hayes, R., Dassen, R., Schilder, A., & Wallage, P. (2005). *Principles of Auditors: An Introduction to International Standards on Auditing*. Edinburgh: Pearson Education Limited
- Ho, L., Liu, C., & Schaefer, T. (2010). Audit tenure and earnings surprise management. *Review Of Accounting And Finance*, 9(2), 116-138. <http://dx.doi.org/10.1108/14757701011044152>.
- Imhoff, E. (1992). The relation between perceived accounting quality and economic characteristics of the firm. *Journal Of Accounting And Public Policy*, 11(2), 97-118. [http://dx.doi.org/10.1016/0278-4254\(92\)90019-t](http://dx.doi.org/10.1016/0278-4254(92)90019-t)



- International Ethics Standards Board for Accountants (IESBA). (2009). *Code of ethics for professional accountants*. New York, N.Y.: International Ethics Standards Board for Accountants (IESBA).
- Jackson, A., Moldrich, M., & Roebuck, P. (2008). Mandatory audit firm rotation and audit quality. *Managerial Auditing Journal*, 23(5), 420-437. <http://dx.doi.org/10.1108/02686900810875271>
- Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal Of Financial Economics*, 3(4), 305-360. [http://dx.doi.org/10.1016/0304-405x\(76\)90026-x](http://dx.doi.org/10.1016/0304-405x(76)90026-x)
- Johnson, V., Khurana, I., & Reynolds, J. (2002). Audit-Firm Tenure and the Quality of Financial Reports. *Contemporary Accounting Research*, 19(4), 637-660. <http://dx.doi.org/10.1506/llth-jxqv-8cew-8mxd>
- Johnson, W. & Lys, T. (1990). The Market for Audit Service: Evidence from Voluntary Auditor Change. *Journal of Accounting and Economics*, 281-308.
- Jones, J. (1991). Earnings Management During Import Relief Investigations. *Journal Of Accounting Research*, 29(2), 193. <http://dx.doi.org/10.2307/2491047>
- Kim, J., & Yi, C. (2009). Does auditor designation by the regulatory authority improve audit quality? Evidence from Korea. *Journal Of Accounting And Public Policy*, 28(3), 207-230. <http://dx.doi.org/10.1016/j.jaccpubpol.2009.04.006>
- Krishnan, G. (2007). Did Earnings Conservatism Increase for Former Andersen Clients?. *Journal Of Accounting, Auditing & Finance*, 22(2), 141-163. <http://dx.doi.org/10.1177/0148558x0702200205>
- Krishnan, J., Raghunandan, K., & Yang, J. (2007). Were Former Andersen Clients Treated More Leniently Than Other Clients? Evidence from Going-Concern Modified Audit Opinions. *Accounting Horizons*, 21(4), 423-435. <http://dx.doi.org/10.2308/acch.2007.21.4.423>
- Lang, M. & Lundholm, R. (1993). Cross-Sectional Determinants of Analyst Ratings of Corporate Disclosures. *Journal of Accounting Research*, 31(2), 246. <http://dx.doi.org/10.2307/2491273>
- Lang, M., Carolina, U., Lundholm, R., & Michigan, U. (2000). Voluntary Disclosure and Equity Offerings: Reducing Information Asymmetry or Hying the Stock?. *Contemporary Accounting Research*, 17(4), 623-662. <http://dx.doi.org/10.1092/9n45-f0jx-axvw-lbwj>
- Lennox, C. (2000). Do companies successfully engage in opinion-shopping? Evidence from the UK. *Journal of Accounting and Economics*, 29(3), 321-337. [http://dx.doi.org/10.1016/s0165-4101\(00\)00025-2](http://dx.doi.org/10.1016/s0165-4101(00)00025-2)
- Libby et al. (2002). Experimental Research in Financial Accounting. *Accounting, Organizations and Society*, 27 (8), 775-810.
- Lim, C., & Tan, H. (2010). Does Auditor Tenure Improve Audit Quality? Moderating Effects of Industry Specialization and Fee Dependence\*. *Contemporary Accounting Research*, 27(3), 923-957.

<http://dx.doi.org/10.1111/j.1911-3846.2010.01031.x>

- Limperg, T. (1932). *Theory of Inspired Confidence* (1st Ed.). Amsterdam: University of Amsterdam.
- Lys, T., & Watts, R. (1994). Lawsuits against Auditors. *Journal of Accounting Research*, 32, 65. <http://dx.doi.org/10.2307/2491440>
- Martinez, A., & Reis, G. (2010). Audit Firm Rotation and Earnings Management in Brazil. *SSRN Electronic Journal*. <http://dx.doi.org/10.2139/ssrn.1640260>
- Mautz, R., & Sharaf, H. (1961). *The philosophy of auditing*. Sarasota, Fla.: American Accounting Association.
- Myers, J., Myers, L., & Omer, T. (2003). Exploring the Term of the Auditor-Client Relationship and the Quality of Earnings: A Case for Mandatory Auditor Rotation?. *The Accounting Review*, 78(3), 779-799. <http://dx.doi.org/10.2308/accr.2003.78.3.779>
- Nagy, A. (2005). Mandatory Audit Firm Turnover, Financial Reporting Quality, and Client Bargaining Power: The Case of Arthur Andersen. *Accounting Horizons*, 19(2), 51-68. <http://dx.doi.org/10.2308/acch.2005.19.2.51>
- O'Keefe, T., King, R., & Gaver, K. (1994). Audit Fees, Industry Specialization, and Compliance with GAAS Reporting Standards. *Auditing Journal of Practice And Theory*, 13(2), 41-45.
- Palmrose, Z. (1986). Audit Fees and Auditor Size: Further Evidence. *Journal Of Accounting Research*, 24(1), 97. <http://dx.doi.org/10.2307/2490806>
- Palmrose, Z. (1991). Trials of Legal Disputes Involving Independent Auditors: Some Empirical Evidence. *Journal Of Accounting Research*, 29, 149. <http://dx.doi.org/10.2307/2491008>
- Petty, R., & Cuganesan, S. (1996). Auditor rotation: Framing the debate. *Australian Accountant*, 5, 40-41.
- PwC, (2013). *PwC Regulatory Briefing*. PwC. Retrieved from <https://www.pwc.com/gx/en/audit-services/publications/regulatory-debate/assets/pwc-regulatory-briefing-march2013.pdf>
- Raiborn, C., Schorg, C., & Massoud, M. (2006). Should auditor rotation be mandatory? *Journal of Corporate Accounting & Finance*, 17(4), 37-49. <http://dx.doi.org/10.1002/jcaf.20214>
- Reynolds, J., & Francis, J. (2000). Does size matter? The influence of large clients on office-level auditor reporting decisions. *Journal Of Accounting And Economics*, 30(3), 375-400. [http://dx.doi.org/10.1016/s0165-4101\(01\)00010-6](http://dx.doi.org/10.1016/s0165-4101(01)00010-6)
- Ruiz-Barbadillo, E., Gómez-Aguilar, N., & Carrera, N. (2009). Does Mandatory Audit Firm Rotation Enhance Auditor Independence? Evidence from Spain. *AUDITING: A Journal of Practice & Theory*, 28(1), 113-135. <http://dx.doi.org/10.2308/aud.2009.28.1.113>

- Ryan, S., Herz, R., Iannaconi, T., Maines, L., Palepu, K., & Schrand, C. et al. (2001). SEC Auditor Independence Requirements. *Accounting Horizons*, 15(4), 373-386. <http://dx.doi.org/10.2308/acch.2001.15.4.373>
- Schuster, C., & Weber, R. (1985). Basic Content Analysis. *Journal Of Marketing Research*, 23(3), 310. <http://dx.doi.org/10.2307/3151496>
- Shelley, M., & Krippendorff, K. (1980). Content Analysis: An Introduction to its Methodology. *Journal Of The American Statistical Association*, 79(385), 240. <http://dx.doi.org/10.2307/2288384>
- Sherer, M., & Kent, D. (1988). *Auditing and accountability*. Paul Chapman.
- Shu, S. (2000). Auditor resignations: clientele effects and legal liability. *Journal Of Accounting And Economics*, 29(2), 173-205. [http://dx.doi.org/10.1016/s0165-4101\(00\)00019-7](http://dx.doi.org/10.1016/s0165-4101(00)00019-7)
- Welker, M. (1995). Disclosure Policy, Information Asymmetry, and Liquidity in Equity Markets. *Contemporary Accounting Research*, 11(2), 801-827. <http://dx.doi.org/10.1111/j.1911-3846.1995.tb00467.x>

## Appendix:

### 1. Predictive Validity Framework – Libby Boxes (Libby et al. 2002)

