ERASMUS UNIVERSITY ROTTERDAM
ERASMUS SCHOOL OF ECONOMICS
MASTER THESIS ACCOUNTING, AUDITING & CONTROL

THE MARKET REACTION TO THE EVENTS OF THE AUDIT ARM SPLIT: EVIDENCE FROM THE UK

Author:

Spyridon Dionysatos 557538

Supervisor:

dr. S. Renes

Second Assessor:

dr. J. Bae

Date: July 21st, 2021

ABSTRACT

In an effort to improve the audit independence and regain the trust of the public towards the audit profession, the Financial Reporting Council (FRC) proceeded to inform the Big 4 firms that they have to split audit from their remaining business units operationally. These changes are entitled to trigger positive reactions to the market due to the potential improvement of the financial reporting quality of the Big 4 auditees. Yet, prior regulatory frameworks have failed to safeguard audit independence to the desired level. Therefore, since the market reaction is under question and given the importance of understanding whether the trust has been regained, I investigate in my thesis the market reaction towards several events associated with the audit split. I employ an event study method, and I find that the markets reacted more positively to Big 4 auditees than non-Big 4 auditees in two out of five events, suggesting that they expect that the operational separation will lead to an increase in the financial reporting quality. Then, I narrow down my sample to include particularly Big 4 auditees, and I examine whether the markets reacted more positively to firms with a lower level of financial reporting quality, as these firms are entitled to benefit more from the increase in audit independence. I yield negative and significant results for one out of five events, in contrast to my expectations. Yet, I attribute this to the concerns of the market regarding the scandals that have taken place prior to the announcement of the event.

Keywords: Market Reaction, Audit Arm Split, Operational Separation, Audit Split, Event Study, Cumulative Abnormal Returns, Earnings Management, Financial Reporting Quality, Big 4 Split, Discretionary Accruals, Discretionary Revenues

Table of Contents

Tables

1. Introduction

On July 3rd, 2020, the Financial Reporting Council (FRC) published a set of principles outlining that the Big 4 firms[1] have to operationally separate the audit division from their remaining units (FRC, 2020a). The announcement of the so-called Audit Arm Split resulted from the independence concerns that arose following the scandals of Carillion and BHS. In both fraud cases in the auditors, PricewaterhouseCoopers (PwC) and KPMG, were held liable for questionable practices (Farrell, 2018; Kapoor & Iacone, 2020). The FRC proceeded to enforce the operational separation of the audit division (FRC, 2020a), to protect the reputation of the audit profession and revert the damage that the accounting scandals have caused to the trust in the audit profession over time. However, this enforcement of the FRC is not the first attempt, on an international level, to safeguard the trust in the audit profession and to improve the quality of the audit services provided. The Securities and Exchange Commission (SEC) was the first institution to revise the auditor independence requirements, following the accounting scandals in the United States (US). The SEC implemented several rules to protect auditor's independence from possible impairments, primarily by restricting a set of non-audit services to be offered to audit clients and issuing regulations regarding the audit of the internal control systems (Sarbanes Oxley Act (SOX) of 2002). Then, in 2011, the European Commission proposed a set of regulatory guidelines related to the statutory audit of public-interest entities, offering suggestions about the non-audit services provided by an auditor. It was later succeeded by the Regulation (EU) No 537/2014 of the European Parliament and the Council of April 16th, 2014, on specific requirements regarding statutory audit of public-interest entities, which prohibited the non-audit services to ongoing or recent audit engagements. The intention of these two regulatory frameworks is identical to the purposes that the FRC poses through the introduction of the operational separation. This intention indicates that the previous regulations were not efficient in ensuring a high level of audit independence. This inefficiency induces concerns about whether the Audit Arm Split will indeed succeed where the previous regulatory frameworks partially failed.

The goal of these regulatory frameworks is to improve audit quality by improving audit independence[2]. The trust that the auditors offer is a pillar for the markets since the investors require an independent and reliable opinion concerning the financial statements of a firm (PCAOB, 2013). According to prior studies (DeFond & Zhang, 2014), the quality of the financial statements, i.e., the financial reporting quality, is partially dependent on the audit quality. Thus, the improvement of audit quality for the Big 4 firms will subsequently improve the financial reporting quality for firms audited by a Big 4 auditor.

As explained above, the goal of the proposed changes is to increase audit quality and subsequently improve financial reporting quality. Therefore, it is sensible to expect that the markets would react more positively to firms affected by the audit split, i.e., firms audited by a Big 4 auditor. Moreover, it is sensible to expect that the markets would react more positively to firms with low financial reporting quality. That is because, first, firms with low financial reporting quality would benefit more than firms with high financial reporting quality from such a regulatory change. However, previous regulatory frameworks also aimed at improving audit independence through imposing several restrictions and still have not succeeded in preventing them. This partial failure is enough to question whether investors still have faith that the regulators can improve the quality of the services

[1] The term "Big 4" is referring to the four largest accounting firms, as measured by revenue, which are Deloitte, PwC, Ernst & Young and KPMG.

[2] According to DeAngelo (1981a), the concept of audit quality lies in the joint probability that the auditor will not only identify but also reveal a breach in the accounting system, the former being connected with their competence whereas the latter being associated with their independence.

provided by the auditors (Shah, 2020, as cited in Menin, 2020; Ramanna, 2021). Thus, it is not clear whether the markets would react positively, negatively or would stay indifferent to the events of the Audit Arm Split. This ambiguity leads to the research question of my thesis, which is to investigate how the markets reacted to the events associated with the Audit Arm Split.

To empirically investigate the market reaction towards the announcement of five events associated with the Audit Arm Split, I first employ an event study research design. The FRC has instructed the Big 4 firms to operationally separate their audit division from the remaining units, which implies that both the benefits and costs that might arise will affect only firms audited by a Big 4 firm rather than all firms. Thus, I compare the market reaction on a 3-day window around the events associated with the audit split for companies audited by a Big 4 firm and companies audited by a non-Big 4 firm to assess whether investors' reaction was more favourable to Big 4 auditees. I also employ a cross-sectional analysis to investigate whether the market reaction observed is partially attributable to other firm or industry characteristics. In my event study, I find that the markets reacted more positively to Big 4 auditees when the FRC announced that they had given a notice to the Big 4 firms that they must prepare for an operational separation and when they announced that they had revised the principles for the audit split. On the contrary, the market reaction to the remaining three events was insignificant. I also find that these results are consistent with the cross-sectional analysis and robust to alternative event windows except for the notice mentioned above. Still, the expanded window of that event includes the days of the Coronavirus outbreak, which justifies the ambiguous results. Overall, the results suggest that investors consider that the audit separation will improve the audit independence of the Big 4 auditors, which will lead to an improved level of financial reporting quality.

Furthermore, I empirically investigate whether the markets considered that the operational separation would prove more beneficial to firms with low financial reporting quality. First, I narrow down my sample to Big 4 auditees. Then, I investigate whether Big 4 auditees with low financial reporting quality were associated with more positive Cumulative Abnormal Returns compared to Big 4 auditees with high financial reporting quality. To do so, I employ discretionary accruals, which are the accrual accounts that can be easily manipulated by a firm's management (Jones, 1991), as a proxy to earnings management. High discretionary accruals show a possible manipulation of the accounting numbers and are an indication of low financial reporting quality. I find that the markets reacted more negatively to firms with high discretionary accruals when the chairman of the FRC stated that the operational separation of audit and consulting is essential to improve the quality of audits. These results oppose my expectations. However, these results align with Li, Pincus & Rego (2008), who investigate the market reaction towards the SOX Act events. To elaborate, the researchers attributed the market's negative reaction to the concerns about the scandals that have taken place before the implementation of the Act. I also find that my results are robust, first, to the use of discretionary revenues as an alternative to discretionary accruals and then to alternative event windows, but with a decaying statistical significance.

This thesis offers a significant contribution to the discussion of the market perception over the operational separation of the audit division from the remaining units of the Big 4 firms. This thesis is the first examination of the markets' perception because of the recency of the events associated with the Audit Arm Split. The results that I have yielded indicate that the market values the intentions of the standard setters to increase audit quality and audit independence. Therefore, any restrictions established to protect the audit profession are indeed achieving their goal to rebuild trust. As trust is the pillar of the audit profession, it is crucial to know whether the markets consider the audit split to be one step towards the improvement of the audit quality or not. Finally, since the audit split is recent,

this thesis can be considered the start towards investigating topics related to the Audit Arm Split, primarily after the finalization of the separation, in 2024.

The remainder of this paper is organized as follows. Section 2 provides a critical examination, first, of the existing literature related to the concepts of market reaction and financial reporting quality, and second of the events associated with the operational separation of the audit division of the Big 4 firms, and then offers the development of the hypotheses to be tested. Section 3 describes the research designs employed to test the market reaction in response to the developed hypotheses. Section 4 offers a detailed sample collection, accompanied by the descriptive statistics of the variables used in the research designs. Then, I proceed to the results section 5, where I test my hypotheses separately. Section 6 includes the results and the explanation of the robustness tests performed, and section 7 concludes on the results, discusses implications of the study, and provides areas for further research.

2. Background Information, Literature Review and Hypotheses Development

This chapter provides a discussion of the relevant literature concerning the market reaction around the announcement of the Audit Arm Split. I organize the literature review chapter into three main categories: first, a review of the academic literature over the audit quality and financial reporting quality, along with the issues that arise, in section 2.1. Then, in sections 2.2 and 2.3, I proceed to map the events that led to the introduction of the operational separation of audit from other services as instructed by FRC and the costs and benefits expected to occur from the split. Finally, in section 2.4, I conduct a literature review on the market reaction of similar events and discuss the appropriate operational metric to measure the market reaction. Those three categories subsequently lead to the formulation of the hypotheses, as presented in section 2.5.

2.1 Audit Quality and Financial Reporting Quality

The quality of audit services has been a heavily discussed topic in prior literature. A significant number of researchers have attempted to provide a definition of the concept of audit quality. DeAngelo (1981a), who offers the most commonly cited definition, states that the concept of audit quality lies in the joint probability that the auditor will both identify and reveal a breach in the accounting system. The former is connected with their competence, whereas the latter is associated with their independence. As Chen, Kelly & Salterio (2012) indicated, the auditor's competence is the overall level of skills, capabilities, knowledge, and expertise an auditor possesses, along with their ethical behavior. Auditor's competence has been marked by prior literature as a crucial factor in the auditors' quality of services. Farmer, Rittenberg & Trompeter (1987) stated that the level of experience possessed by an auditor is negatively associated with the level of acceptance of aggressive accounting treatments that favor clients' numbers. In a similar context, Libby & Frederick (1990) identify that experienced and knowledgeable auditors are more likely to discover the source of errors in the financial statements compared to inexperienced auditors.

Even though the auditor's competence is essential to the audit profession, most of the studies attribute the presence or the lack of high audit quality to the level of auditor independence. According to the International Standards on Auditing, an auditor must be independent both in mind and in appearance. In a theoretical setting, DeAngelo (1981b) shows that "low-balling", i.e., accepting an audit engagement with lower fees in hopes of offsetting the loss with future audits, impairs audit independence and subsequently undermines audit quality. While investigating the relationship

between goodwill impairments and the likelihood that the auditor is dismissed, Ayres, Neal, Reid & Shipman (2019) indicate that the independence is impaired because auditors' intention is to avoid dismissal, which compromises the quality of the services provided. Those two papers examine the impairment of auditor independence in client acceptance and client affiliation, respectively. However, the attention of prior literature regarding audit independence is the potential impairment due to non-audit services being provided in audit clients, yielding primarily insignificant results. Lennox (2016) examines whether the implementation of restrictions on tax services provided will result in a higher level of audit quality and investigates whether auditors' independence is improved, yielding insignificant results. Similar results are also offered by Callaghan, Parkash & Singhal (2009). They find no association between going-concern opinions[3] and the provision of non-audit services in a sample of bankrupt firms. However, Carcello, Neal, Reid & Shipman (2020) suggest that the level of non-audit fees is negatively associated with the impairment of goodwill, which is an indication of impaired independence. All the concerns mentioned above have triggered several regulation changes to ensure that the audit quality is preserved at high levels, both timely and universally, some of which will be further investigated later in this chapter.

The heated interest that prior literature expresses lies in the founding of the audit profession itself, aiming to provide trust in a firm's financial statements and reduce the agency (DeFond & Zhang, 2014). The auditors' trust is a pillar for the markets since the investors require an independent and reliable opinion concerning the financial statements of a firm (PCAOB 2013). DeFond & Zhang (2014) also state that a higher level of audit quality conveys a greater level of assurance that the firms' financial statements reflect their underlying financial situation. Therefore, the quality of the financial statements, i.e., the financial reporting quality, also depends on the audit quality, apart from the quality of the pre-audited financial statements.

An issue that arises with both audit quality and financial reporting quality is that it is impossible to observe them directly. Prior literature suggests several proxies to account for audit quality and financial reporting quality. Yet, the interest of this paper wavers around the use of metrics that capture both financial reporting quality and audit quality. The Audit Arm Split aims to improve the quality of the financial statements by improving the audit quality. In their analytical research paper, Gaynor, Kelton, Mercer & Yohn (2016) indicate that restatements in the financial statements can operationalize both concepts. Furthermore, they indicate that accruals quality, principally measured by discretionary accruals, is an appropriate proxy for financial reporting quality. However, in their study about audit market concentration and auditor tolerance for earnings management, Boone, Khurana & Raman (2012) indicate that a high level of discretionary accruals used to meet or beat earnings benchmarks is an indication of low audit quality. Thus, discretionary accruals can be used as a measure to account for audit quality and financial reporting quality jointly.

In this study, I proceed to measure audit and financial reporting quality through discretionary accruals. I choose to utilize discretionary accruals as the proxy that captures both these two concepts for two reasons. First, since the scandals that I will further explain later in section 2.2 resulted from earnings management and aggressive accounting principles (Kapoor & Iacone, 2020), concepts operationalized by discretionary accruals, and second because I lack access to data regarding restatements and going-concern opinions. Additionally, to verify the results produced by the discretionary accruals model, I employ discretionary revenues, which is a specific accrual measure commonly used by prior literature (Caylor, 2010; Stubben, 2010; Zha Giedt, 2010), to test whether the

[3] Going-concern opinions are extensively used by prior literature as an operational measure of audit independence and audit quality.

results are robust. Further explanation over discretionary accruals, earnings management, and their association with my thesis is offered in section 2.5.

2.2 Events that led to the Audit Arm Split

Since its establishment, the FRC has been committed to improving first the integrity and the transparency of the audit profession and second, the level of the quality of services offered by the auditors (FRC, 2010). Therefore, the center of FRC's interest is to establish measures to improve audit quality or maintain it to a high level. Following his appointment, the new chairman of the FRC, on November 7th, 2019 (Event 1), was the first one to express his interest in the enforcement of the operational separation of the audit segment from the remaining components of the audit firms in the UK (Kinder & Jenkins, 2019). On July 3rd, 2020 (Event 3), the FRC announced that the Big 4 firms have to operationally separate the audit from their remaining units (FRC, 2020a) due to the ongoing independence concerns provoked by recent scandals. However, the Big 4 firms were aware that they should prepare for an operational split before its announcement (FRC, 2020b) since they have already received a written notice from the FRC since February 27th (Event 2).

Yet, the Audit Arm Split is not the first regulatory framework, both internationally and nationwide, that has been introduced to eliminate the ongoing independence concerns associated with non-audit services provided to an audit client. In 2000, the SEC revised the auditor independence requirements, suggesting several rules to protect auditor's independence from possible impairments, one of which was the scope of the services provided by audit firms to their audit clients. The SEC indicated that a set of non-audit services provided to audit clients (e.g., bookkeeping, actuarial services, etc.) impair an auditor's independence and should not be offered to clients with an audit engagement. These independence concerns were driven by both the number and the size of the accounting scandals at the start of the 21st century, which were mainly accredited to independence issues. This suggestion was succeeded by the Sarbanes-Oxley Act (SOX) of 2002 that proceeded to prohibit the provision of non-audit services to audit clients, along with the establishment of rules regarding the audit of the internal control systems.

The regulation regarding audit independence and non-audit services has not been implemented only in the US. In 2011, the European Commission proposed a set of regulatory guidelines related to the statutory audit of public-interest entities, which are equivalent to the ones proposed by the SEC in the US. Once again, the prohibition of the non-audit services to ongoing or recent audit engagements has been the center of the suggestions of the European Commission. The intuition behind these suggestions was that the standard setters wanted to improve an auditor's independence. This proposal was succeeded by the introduction of a regulatory framework (EU 537/2014), later named "the Audit Reform", a part of which was to prohibit the provision of the majority of non-audit services[4] in light of the ongoing independence concerns. The proposition and the implementation of the regulatory framework concerning the non-audit services provided have been performed as a reaction to the accounting scandals in Europe, in combination with the global economic crisis in 2008.

In 2014, the FRC questioned PwC's practices regarding the audit engagement with BHS after criticizing the accuracy and completeness of the company's accounts, as well as the ability of the firm to continue as a going concern. The FRC attributed the subsequent failure of BHS to PwC and then questioned the latter's independence while highlighting the need for a higher level of transparency (Farrell, 2018). Four years later, Carillion collapses, while KPMG, which was responsible for the annual audit, is held liable for their practices and their lack of skepticism regarding the approval of

[4] According to Regulation EU 537/2014, audit firms are not allowed to provide non-audit services other than those listed under Article 5(1).

aggressive accounting judgments. KPMG has been lenient to earnings management practices, as the FRC reports evidence that the goodwill should be written-off (Kapoor & Iacone, 2020). Again, the perception about the auditor's independence is hurt, and therefore trust in the audit profession is in danger.

Table 2.1: Events of the Audit Arm Split

Event	Date	Event Title and Description
Event 1	7 November 2019	FRC Chairman calls for a split of Big 4 Simon Dingemans, the new appointed chairman of the FRC, states that the operational separation of audit and consulting is essential to enhance the quality of audits. He targeted the Big 4 firms as the center of the proposed reform, but he also considered that it would be appropriate to enforce the operational split on Big 6 (comprised of the Big 4 firms, BDO and Grant Thornton UK). (Kinder & Jenkins, 2019)
Event 2	27 February 2020	FRC Sends letters to Big 4 outlining operational separation The Big 4 audit firms receive a notice from the FRC that they should prepare for the operational separation of the audit segment from the rest of the firms' segments outlining the establishment of independence governance and forming expectations for transparency in the financial results. (FRC, 2020b)
Event 3	3 July 2020[5]	FRC announces the operational separation of audit practices FRC publishes the principles that outline the Audit Arm Split enforce on the Big 4 firms. The main points outlined, include the establishment of AGB, the focus of the audit culture on quality and rules regarding partner compensation. (FRC, 2020a)
Event 4	11 September 2020	Deloitte confirms audit split In a press release, Deloitte I the first audit firm to announce that they have initiated the operational separation by establishing the AGB, effective from January 1st, 2021. (Deloitte, 2020)
Event 5	23 February 2021	FRC revises the operational separation of audit practices The FRC publishes a revised version of the principles that outline the Audit Arm Split of the Big 4 firms. The main point of the revision is the prohibition of any sort of recommendation of business clients from the audit segment to the other segments of the firms. (FRC, 2021)

In an effort to protect the reputation of the audit profession, improve the quality and effectiveness of audit in the UK and revert the damage that the accounting scandals caused to the trust over time, the FRC informed the Big 4 firms that they have to split the audit services from the remaining services provided, by the end of 2024 (FRC, 2020a). To elaborate, the FRC instructs the Big 4 firms to establish an audit board that oversees the audit practices and ensures that the independence criteria are met (FRC, 2020a)[6]. Additionally, the FRC defines the scope of the services

[5] The principles for the operational separation were published on the 3rd of July, but the press release that is cited was made on July 6th. In my thesis, I examine the market reactions to this event by using 3 July 2020 as the date *t* of the event, since this was the day that principles were published, funnelling information to the market.

[6] The FRC announced a set of rules that must be met in July 2020. However, a revision of those rules has been made public in February 2021, proposing that the audit segment should not receive any benefits from introducing clients to the remaining segments of the firm.

offered by the audit segment, in line with the restrictions proposed by the European regulatory framework (EU 537/2014). Then, provided that the purpose is to operationally split audit from the other firm segments and offer transparency over the audit segment, the FRC commands the Big 4 firms to isolate the profit and loss accounts related to the audit department. As a final requirement, the FRC states that any transaction, whose interested parties are the audit segment and another firm's department, should comply with the "arms-length" principle. Yet, the audit segment is not allowed to receive any fees from introducing possible clients to other departments.

The first Big 4 firm to announce that they have initiated the audit split by establishing the independent Audit Governance Board (AGB) is Deloitte (Deloitte, 2020), on September 11th, 2020 (Event 4). The most recent announcement associated with the Audit Arm Split is the revision of the principles of the operational separation by the FRC (2021) on February 23rd, 2021 (Event 5). On that date, the FRC announced that it is prohibited for any segment of the Big 4 firm to introduce a client to the audit segment or vice versa. Table 2.1 summarizes each event that I investigate in my thesis, including the date and a description of the respective event.

The announcement of the operational split of the audit, i.e., the Audit Arm Split on July 3rd, has led to both positive and negative reactions. Scholars and experts who treated the event positively have been arguing for years that the auditors ought not to offer any services to their clients other than audit services and that all the scandals were associated with questionable audit independence (Landell-Mills & Peterson, 2018; Mintz, 2020). On the other hand, scholars and experts who treated the event negatively pose that the proposals should focus on rebuilding the ethics and culture of the profession rather than implementing rules that alleviate the issues (Shah, 2020, as cited in Menin, 2020; Ramanna, 2021). Following those controversial opinions, it is interesting first to identify the benefits and costs of implementing the Audit Arm Split and second to study the market reaction, representing the perception of the market towards the quality of the audit services.

2.3 Expected Benefits and Costs of the Audit Arm Split

The introduction of the operational split of the segments of the Big 4 firms first aims to improve the auditor's independence and then to maintain a high level of trustworthiness to protect investors' interest and enhance their confidence towards financial reporting (FRC, 2020a). The targets that the FRC has set are straightforward, yet one concern arises. Scholars question whether the operational separation of the audit segment is the appropriate mechanism to protect an auditor's independence from being impaired, considering culture as the main issue (Shah, 2020, as cited in Menin, 2020; Ramanna, 2021). However, this concern is associated with controversial opinions since, according to prior literature, the provision of non-audit services to audit clients impairs the perceived independence of an auditor (Krishnan, Zhang, & Sami, 2005), and more explicitly, the independence in appearance. Moreover, the intentions of the regulations before the Audit Arm Split, discussed in section 2.2, were identical to the FRC's intentions through the introduction of the operational separation. This indicates that those regulations were not efficient in ensuring a high level of audit independence, subsequently inducing concerns about whether the Audit Arm Split will succeed where the previous regulatory frameworks partially failed.

The benefits of establishing an operational separation are difficult to measure and observe. Yet, the costs associated with this concept can be easily predicted and measured, considering prior regulatory frameworks. The announcement of the split was followed by the declaration that the Big 4 firms have to establish an audit board, whose role is the oversight of the audit practices (FRC, 2020a). In combination with the operational split itself, this declaration is expected to elevate the costs of the Big 4 firms, which is subsequently expected to affect the audit fees. In a similar setting, the

implementation of the SOX has been reported to be costly, according to prior literature (Krishnan, Rama & Zhang, 2008), which subsequently led to higher audit fees. The similarity between the SOX and the Audit Arm Split justifies the concerns about the expected high audit fees that the scholars express.

Those expected benefits and costs, along with the concerns around them, are the factors that shape the market reaction to the announcement of the Audit Arm Split. Yet, the market's perception regarding whether the operational split is more beneficial or costly has not been touched upon by prior literature. I furtherly explain the concept of market reaction in the following section.

2.4 The market reaction to the announcement of the Audit Arm Split

As previously mentioned, scholars have expressed contradictory opinions regarding the announcement of the operational separation of the audit from the other segments. However, there is no prior examination of the stock market's reaction to the announcement of the audit split. The recency of the event justifies why prior literature has not yet examined the overall effect of the audit operational separation. Nevertheless, the event's similarity to prior regulatory changes, and the focus on improving audit independence, provides a solid basis to form expectations.

Examining the announcement of events associated with the SOX Act of 2002, which also aimed at improving the audit independence, Li et al. (2008) indicate that the market reaction towards the announcement of the SOX Act was succeeded by positive abnormal stock returns[7]. They mainly attributed the results to investors' perception that the enforcement would positively contribute to restricting earnings management. The setting of the research performed by Li et al. (2008) is similar to the setting around the events of the operational separation, since the scandals that preceded the announcement of the Audit Arm Split, i.e., the Carillion scandal and the BHS scandal, were a result of earnings management. However, the SOX Act was a regulation with a broader spectrum, ranging from corporate governance to auditing practices. In contrast, the Audit Arm Split is focused on the separation of the audit division from the remaining divisions of the Big 4 firms. Jain & Rezaee (2006) research yielded comparable results with Li et al. (2008). However, they also indicated that firms with higher corporate governance and financial reporting quality received a positive market reaction. In contrast, companies with low corporate governance and financial reporting quality launched a negative reaction to the stock market. Other SOX studies focusing on the SOX 404 disclosures indicate that the markets reacted either positively or negatively to the announcement of events. To do so, they use different proxies for financial reporting quality, i.e., restatements (Palmrose, Richardson, & Scholz, 2004) or the disclosure of internal control weaknesses (Hammersley, Myers & Shakespeare, 2008). These concepts form the basis of my second hypothesis since it is related to the firms' financial reporting quality audited by a Big 4 auditor.

The literature indicated above provided indications of positive market reactions to the SOX Act. However, Zhang (2005) indicates that applying the regulatory changes required by the Act is considered costly to business and thus leads to an overall negative reaction. Similar results were also provided by Litvak (2007), who indicates that US firms were associated with more negative abnormal returns than similar non-US firms during the SOX events and attributes this reaction to cost incentives. These findings are relevant in forming expectations about the market reaction to the Audit Arm Split, as its implementation is accompanied by a set of expected costs, as discussed in the previous section. As a concluding remark, it is evident that in the case of the Audit Arm Split, the overall reaction of the stock markets is dependent on the market perception over the trade-off between

[7] Abnormal Stock Returns is a commonly used metric that operationalizes the concept of market reaction (Li et al. (2008), Larcker, Ormazabal & Taylor (2011)).

the benefits and the costs of implementing the operational separation of the audit segment, and more precisely on whether the market perceives that the Audit Arm Split will benefit firms audited by a Big 4 auditor.

The concept of market reaction has been primarily measured using either Cumulative Abnormal stock Returns (CAR) or Abnormal Returns by prior literature, depending on whether the researchers performed their analysis on a short-time window or daily reactions, respectively. In their research about the reaction of the stock markets surrounding the events of the SOX Act, Li et al. (2008) use short-period windows (two to five days, depending on the event) around each event and calculate the cumulative abnormal market returns. On the other hand, Larcker et al. (2011) operationalize the reaction of the stock markets through the use of daily abnormal returns on a span of 18 different events. In my thesis, I use Cumulative Abnormal Returns as a proxy for the market reaction, computed on a 3-day window around each of the five events discussed in section 2.2.

2.5 Hypotheses Development

The main goal of this thesis is to investigate the reaction of the stock market towards the announcement of the Audit Arm Split. According to the Efficient Market Hypothesis, if the market is efficient in its semi-strong form, all public information relevant to stock is incorporated in shaping its value. In line with the theory, I expect that the announcement of the Audit Arm Split would affect the prices in the stock market, solely in the case that it offers valuable information. As discussed in section 2.3, the benefits from implementing the operational split of audit from the other departments are protecting investors' interests and boosting their confidence towards financial reporting (FRC, 2020a). On the other hand, implementation costs are expected to be depicted in the future audit fees, as happened with prior regulatory settings (Krishna et al., 2008). Therefore, if the overall perception of the market is that the operational separation is beneficial to firms audited by a Big 4 auditor, they will react positively to those firms affected by the audit split. However, suppose the market considers that the implementation of the audit split is not going improve the financial reporting quality. In that case, they will show indifference in the market reaction towards firms audited by a Big 4 auditor and firms audited by a non-Big 4 auditor. This reasoning is also consistent with the results of Choi, Frye & Yang (2008), who identified that the markets perceived the implementation of the SOX Act as beneficial for firms with weaker shareholder rights and reacted positively, with firms experiencing positive abnormal returns. Additionally, Li et al. (2008) and Rezaee & Jain (2006) also indicate that positive abnormal returns are associated with the expected benefits of the SOX Act. Finally, Choi et al. (2008) indicate that the market may react negatively and experience negative abnormal returns due to the expected costs of the SOX Act.

The FRC has instructed the Big 4 firms to separate their audit segments from the remaining segments operationally. This distinction implies that both the benefits and costs discussed above ought to affect firms audited by a Big 4 firm rather than all firms. Nevertheless, there is no clear expectation of the market reaction. A positive market reaction would indicate that investors have trust that the regulatory changes can improve auditor independence. However, if investors do not have faith that such a regulatory change can prove beneficial, they will either react negatively because of the costs or indifferently. I proceed to form the main hypothesis (in alternative form), which will be hereafter mentioned as the "Firm's Auditor" hypothesis, as:

Hypothesis 1: *Big 4 auditees are associated with a more positive (negative) market reaction to the events associated with the Audit Arm Split compared to non-Big 4 auditees.*

According to the FRC, the audit split aims to improve the overall level of audit quality and enhance the audit market's flexibility (FRC, 2020a). As indicated by prior literature, the quality of the financial statements, i.e., the financial reporting quality, is affected by audit quality (DeFond & Zhang, 2014). This relationship implies that a revamp towards the improvement of the audit quality conveys higher financial reporting quality. In the comparable setting of the SOX Act, Choi et al. (2008) indicate that the market considered the act's implementation as beneficial for firms with weaker shareholders rights and subsequently reacted positively. Additionally, Li et al. (2008) yielded significant results when examining several legislative events that are part of the SOX Act, pointing that the market experienced positive abnormal returns around those events for companies with a history in earnings management. The research of Li et al. (2008) implies that the announcement of several events of the SOX Act was treated positively by the markets because of the expectation that the regulatory changes would prevent earnings management events from occurring. This prevention subsequently increases the level of financial reporting quality. As prior literature suggests, improving the audit quality will improve the financial reporting quality and is particularly more beneficial for firms with low financial reporting quality. Therefore, it is sensible to assume that around the events of the Audit Arm Split, the investors will react more positively to firms with low financial reporting quality. As indicated in section 2.1, I approach the concept of financial reporting Quality through its earnings management perspective since the scandals that led to the introduction of the Audit Arm Split were scandals of earnings management. I use discretionary accruals as the proxy for earnings management, with high discretionary accruals indicating possible manipulation of the accounting numbers. This manipulation is a signal of low financial reporting quality. Thus, I form my second hypothesis, henceforth mentioned as the "Financial Reporting Quality" hypothesis, which, in alternative form, is:

Hypothesis 2: *There stock market reaction is more positive for Big 4 auditees with a higher level of discretionary accruals around the events associated with the Audit Arm Split.*

3. Methodology

In this chapter, I proceed to discuss the methodology used to investigate the investors' reaction to events associated with the operational separation of the audit business. First, in section 3.1, I address the event study method and define the primary variable of interest, and the approach followed to measure it. Then, in section 3.2, I perform a cross-sectional analysis to address my two main hypotheses, i.e., the "Firm's Auditor" hypothesis and the "Financial Reporting Quality" hypothesis.

3.1 Event Study and Cumulative Abnormal Returns

In my thesis, I employ the event study methodology to examine a group of events associated with the Audit Arm Split, i.e., the operational separation of the audit segment from the other segments of the Big 4 audit firms. The main goal of event studies is to examine short-term changes in stock prices around the announcement of an event. As indicated in section 2.5, in line with the Efficient Market Hypothesis, the investigation of short-term price movements provides insights into investors' perception of a particular event. The concept of "short-term event window" is also supported by prior researchers, who indicate that given the market efficiency[8], a one-day window (Kothari, 2001) or a

[8] The references to the market efficiency are particularly discussing the efficiency of the market in its semi-strong form.

short 3-day window, including the day before and the day after the announcement of the respective event (Palmrose et al., 2004) are reliable to base interpretations upon.

In this event study, I use Cumulative Abnormal Returns (CAR) as the dependent variable, which captures the response of the investors towards each event associated with the Audit Arm Split. The announcement and the implementation of the operational separation of the audit from the other segments of the Big 4 firms are set to affect particularly firms audited by a Big 4 firm. However, I examine investors' reaction towards both companies audited by a Big 4 firm and the firms audited by a non-Big 4 auditor. Prior literature suggests several alternatives to calculate Cumulative Abnormal Returns. In this research, I employ the market-adjusted model typically used in prior research to calculate the Abnormal Returns around events (Larcker et al., 2011; Palmrose et al., 2004). According to this model, the Abnormal Returns are computed as the daily individual stock return minus the return of the CRSP value-weighted market index of that day[9]. However, the CRSP value-weighted market index comprises stocks traded in the US markets and is provided by the Center for Research in Security Prices (CRSP). Since my research focuses on the UK stock market, I substitute the CRSP value-weighted market index with the FTSE All-Share Return Index[10]. This FTSE index is a value-weighted index that represents 98-99% of the capital value of all the firms in the UK market and is provided by the FTSE Russel, part of the London Stock Exchange Group. The FTSE All-Share Return Index meets both the criteria of similarity and inclusion. First, it is the equivalent of the CRSP value-weighted index[11] in the UK market. Then, it is the index with the highest level of stock incorporation among all indices in the UK stock market, representing 98-99% of the value of of the capital value of all the firms in the UK market.

In line with Larcker et al. (2011) and Palmrose et al. (2004), I compute the Abnormal Returns (AR) as the daily individual stock return minus the return of the FTSE All-Share Return Index of each day in an event window from one day before (t-1) to one day after (t+1) the event[12], for all five events. I examine an event window, rather than solely the day of the event, to account first for a possible leak of information in the markets about the respective event and second for a possible late response. However, I conduct my research on a narrow window to isolate the market reaction to the events associated with the Audit Arm Split from the reaction to other news around the same period[13]. Then, I compute the Cumulative Abnormal Returns for each firm-event as the sum of the Abnormal Returns of each firm during the event window (-1,+1), as shown in Equation 1.

$$CAR_{ij} = \sum_{t=-1}^{1} AR_{jt} = \sum_{t=-1}^{1} (R_{jt} - FTSE\_All\_Share_t) \quad (1)$$

Subscripts *i* and *j* denote the event and the firm, respectively, with $i = 1^{st}, 2^{nd}, \ldots, 5^{th}$ event and *t* is the day of the event window, with 0 being the day that the respective event took place. Therefore, CAR_{ij} is the Cumulative Abnormal Returns of the firm *j* over the event *i*, R_{jt} is the daily

[9] Value-weighted market indices represent the market return in the market-adjusted models.

[10] FTSE All-Share Return Index is a value-weighted market return index that consists of the FTSE 100 Index, the FTSE 250 Index, and the FTSE SmallCap Index, which jointly account for the top 619 companies with the highest market capitalization in the London Stock Exchange market.

[11] The CRSP value-weighted market indices is a series of indices that contain all the listings from each of the following markets, respectively; New York Stock Exchange (NYSE), NYSE American, National Association of Securities Dealers Automated Quotations (NASDAQ), and NYSE Arca.

[12] The event window consists of (-1,1) trading days around the event. This means that if the event coincides with weekend days or public holidays, during which the stock market is closed, I modify the event window to three working/trading days (e.g. July 2nd, 2020 to July 6th, 2020).

[13] In chapter 6 of my thesis, as a robustness test, I calculate the Cumulative Abnormal Returns by stressing the results of my hypothesis testing for different sizes of event windows.

individual stock return of firm *j* on day *t* of the event window and $FTSE\_All\_Share_t$ is the return of the FTSE All-Share Return Index on day *t* of the event window.

3.2 Cross Sectional Analyses

After examining the overall market reaction to the events associated with the Audit Arm Split for both the Big 4 and non-Big 4 auditees, I perform a cross-sectional analysis to address the two main hypotheses. To elaborate, I test whether the investors' reaction is a function of several variables denoted below. First, I address the fact that not all firms in the UK market are supposed to be affected by the operational separation. Any benefits and costs that arise due to the new regulatory change target particularly the Big 4 firms and subsequently companies audited by a Big 4 auditor. Therefore, in the following sub-section, I examine the differential reaction of the investors to each operational separation event, for firms audited by a Big 4 firm versus firms that are not audited by a Big 4 auditor. Then, in section 3.2.2, I narrow down my sample to Big 4 auditees and I examine whether firms with low financial reporting quality are associated with more positive Cumulative Abnormal Returns around the events of the operational separation.

3.2.1 Firm's Auditor

As previously indicated, the FRC proceeded to a series of announcements targeting the Big 4 audit firms, outlining their expectations about the operational separation of the audit from the consultancy business. The main purpose of the split is to increase the level of audit independence, which subsequently improves the financial reporting quality. Therefore, firms audited by a Big 4 auditor are entitled to benefit from the operational separation due to the expected increase in the level of financial reporting quality. On the contrary, there is no expected benefit for firms that are not audited by a Big 4 auditor, since the announced operational separation does not apply to their auditor. In this spirit, I conduct a cross-sectional analysis to investigate the difference in investors' reaction to the events related to the Audit Arm Split between the auditees of a Big 4 firm and the auditees of a non-Big 4 firm. For each event *i* , I estimate the following model:

$$CAR_{ij} = \beta_{0i} + \boldsymbol{\beta_{1i}}\, \boldsymbol{BIG4_{ij}} + \beta_{2i}\, AUDFEES_{ij} + \beta_{4i}\, BMRATIO_{ij} + \beta_{5i}\, BETA_j + \beta_{6i}\, MVAL_{ij} + \beta_{7i}\, ALTMAN_{ij} + \beta_{8i}\, LOSS_{ij} + \sum_{k=1}^{9} \beta_{ki}\, INDUSTRY_{ik} + \varepsilon_{ij} \quad (2)$$

Subscripts *i* and *j* indicate the event and the firm, respectively. In the research model that I estimate, the dependent variable is *CARij*, which is the Cumulative Abnormal Returns of firm *j* during the event *i* window, as investigated in the event study of the previous section. The coefficient of interest β_{1i} is the coefficient of variable BIG4, which distinguishes auditees of a Big 4 firm from auditees of a non-Big 4 firm. The independent variable *BIG4ij* equals 1, if *j*'s auditor was a Big 4 firm in the most recent to the event *i* annual report, and 0 if otherwise. To mitigate the endogeneity issues, due to potential omitted correlated variables, I control for the level of audit fees[14] of firm *j* in the event *i* window. In line with prior literature (DeFond et al., 2002; Choi, Kim, & Simunic, 2008), I include the natural logarithm of audit fees (*AUDFEESij*) as reported on the most recent, to each event, annual report. I also control for the size of the firm *j* in the event *i* window, by using the natural

[14] Audit fees are indicated by prior research (DeFond et al., 2002; Choi et al., 2008) to be correlated with both the dependent and independent variables of my research design. On the one hand, it is known that Big 4 firms charge the so-called Big 4 premium, indicating higher audit fees, and on the other hand, a higher level of audit fees may affect the reaction of the market towards an event that is entitled to affect the audit fees.

logarithm of the market value[15] (*MVALij*) of firm *j* in the event window *i*. According to prior literature, first, the size of a firm affects the market returns (Li et al., 2008; Larcker et al., 2011), and second, firms with high capitalization tend to choose a Big 4 firm as their auditor (Reynolds & Francis, 2000). Then, I control for the book-to-market ratio[16] ($BMRATIO_{ij}$) of firm *j* during the event *i* window and firm *j*'s systematic risk[17] (*BETAj*), which are both firm characteristics that are known to affect returns (Li et al., 2008; Larcker et al., 2011). I proceed to include *ALTMANij* as a control variable, namely the Altman's z-score[18], to account for firm *j*'s financial distress in the event *i* window. Prior research has indicated that firms in distress are less likely to choose a Big 4

Table 3.1: Definition and measurement of variables for Firm's Auditor Hypothesis

Variable	Description	Measurement
CAR	Cumulative Abnormal Returns	Daily stock return minus the return of the FTSE All-Share Return Index of each day in an event window from one day before (t-1) to one day after (t+1) the event
BIG4	Big 4 Auditor	1, if the firm's auditor is a Big 4 auditor, and 0 if otherwise
MVAL	Market Value	Natural logarithm of the average market value of the firm during the event window
AUDFEES	Audit Fees	Natural logarithm of the audit fees of the firm
BMRATIO	Book-to-Market Ratio	Total assets divided by the average market value of the firm in the event window
BETA	Beta Coefficient - Systematic Risk	Computed through the CAPM model. Refer to footnote 17.
LOSS	Negative Earnings Before Extraordinary Items	1, if the earnings before extraordinary items on the most recent annual report is negative, 0 if otherwise
ALTMAN	Altman Z-Score	Refer to footnote 18 for the formula

auditor and are associated with more negative returns (Altman, Iwanicz-Drozdowska & Laitinen, 2017; Kluger & Shield, 1989). Additionally, I include an indicator variable equal to 1 if the income before extraordinary items of firm *j* on the most recent annual report to event *i* is negative, and 0 if otherwise since the most recent financial results affect market returns. Finally, I classify firms across the ten industries as identified by the Standard Industrial Classification (SIC), based on the two-digit

[15] As a market value, I employ the 3-day average market value of the firm *j* during the event *i* window, computed as the stock price of the respective day multiplied by the number of firm *j*'s stocks.

[16] To calculate the book-to-market ratio, I employ the total assets of firm *j*, as reported on the most recent, to event *i*, annual report, whereas the market value of firm *j* is the average market value of the firm during the event *i* window.

[17] To assess the systematic risk (beta) for each firm, I use the Capital Asset Pricing Model (CAPM) on daily stock returns of the fiscal year 2018, which is more than one year before the first event that I study in my thesis. I also employ the returns of the FTSE All-Share Return Index as the expected market return to calculate the beta.

[18] Altman's z-score provides an indication of a firm's financial health. A score higher than 3.0 indicates a healthy firm, a score between 1.8 and 3.0 implies that the financial health of a firm is weaker and induces a moderate chance of bankruptcy, whereas a score lower than 1.8 signifies a high probability of going bankrupt. It is calculated as:

$$Altman's\ z-score_{ij} = 3.107 * \frac{EBIT}{Total\ Assets} + 0.998 * \frac{Net\ Sales}{Total\ Assets} + 0.42 * \frac{Book\ Value\ of\ Equity}{Total\ Liabilities} + 0.717 * \frac{Working\ Capital}{Total\ Assets} + 0.847 * \frac{Retained\ Earnings}{Total\ Assets}$$

SIC code[19], and control for the industry fixed effects. Table 3.1 provides a summary of the variables used in the model.

In addition to the model mentioned above, I substitute the variable $BIG4_{ij}$ with the variable $DELOITTE_{ij}$, particularly for the fourth event. The intuition behind this change is that the fourth event is related to Deloitte being the first Big 4 firm to confirm that they initiated the audit split. In line with the definition for the variable $BIG4_{ij}$, for the fourth event, $DELOITTE_{ij}$ distinguishes between the auditees of Deloitte from the auditees of other Big 4 or non-Big 4 firms and is equal to 1 if firm *j*'s auditor is Deloitte, and 0 if otherwise. I maintain the other components of the intact.

3.2.2 Audit Quality and Financial Reporting Quality – Discretionary Accruals

The focal point of the Audit Arm Split is to improve the overall level of audit quality. Thus, a benefit is expected to arise for the companies audited by a Big 4 auditor due to the association between audit and financial reporting quality (DeFond & Zhang (2014). As indicated in the literature review, the market perceives that firms with lower financial reporting quality are to benefit more than firms with high financial reporting quality when audit quality improves. Therefore, I expect that the market will react more positively to firms with low financial reporting quality. As a proxy to financial reporting quality, I employ the discretionary accruals. Prior literature distinguishes between discretionary and non-discretionary accruals. The former refer to the part of the total accruals at the management's discretion to be manipulated, whereas the latter refer to the part of the accruals that cannot be manipulated by a firm's management (Jones, 1991; Kothari, Leone & Wasley, 2005). The intuition behind the introduction of this proxy on my research design is based on two criteria. First, the Discretionary Accruals is a heavily cited measure to operationalize earnings management, whose presence is an indication of low financial reporting quality (Boone et al., 2012). Second, the major scandals in recent history, which indicated the need to improve the quality of the audit procedures (Kapoor & Iacone, 2020), resulted from earnings management and aggressive accounting principles[20]. As a result, in my research, I deem it necessary to operationalize the concept of financial reporting quality through earnings management and, therefore, discretionary accruals.

In the estimation process of the Discretionary Accruals, several measures must be taken to resolve research design issues that might lead to incorrect inferences. To elaborate, prior literature is quite judgemental on the use of Discretionary Accruals, because these models are known to introduce a Type 1 error, i.e., identifying earnings management when it is not present (Chen, Hribar & Melessa, 2018). Moreover, the Discretionary Accruals occur as the residuals of a model (Chen et al., 2018; McNichols & Stubben, 2018) and are employed as a variable in a different model, primarily as a dependent variable, introducing bias in the coefficients of interest. In my thesis, the setting differs since Discretionary Accruals are an independent variable. Nevertheless, there are still ongoing concerns about the bias in the model's coefficients and thus concerns about the inferences, so I proceed to improve my accruals model by addressing several suggestions from McNichols & Stubben (2018). According to the researchers mentioned above, a crucial step towards improving the validity of the results of a research design that includes discretionary accruals is to choose the appropriate accrual model. Thus, I employ the accrual model proposed by Kothari et al. (2005), whose model is an extended version of the modified Jones model introduced by Dechow, Sloan, & Sweeney (1995),

[19] Refer to Table 4.3 in the Descriptive Statistics section for information about the industrial classification of the firms.

[20] In their article published in Bloomberg, Kapoor & Iacone (2020) mention that the Carillion scandal resulted from aggressive accounting principles. They also refer to the shock in the trust of the audit profession following the Wirecard scandal.

and accounts for the effect of the performance of a firm on the accruals (Equation 3). The intuition behind choosing this model to estimate discretionary accruals is that a firm's performance substantially affects accruals. Thus, including a performance index to control for the firm's performance, namely the Return on Assets ($ROA_{j,t-1}$) index, can mitigate the overestimation of discretionary accruals and reduce the bias of the coefficients in the cross-sectional model later introduced. In addition to controlling for performance, I match firms on industry and ROA[21], which introduces better estimates for the coefficients of the non-discretionary accruals. Finally, I employ this model because Kothari et al. (2005) indicate that the inclusion of a scaled intercept, in addition to the unscaled intercept, increases the validity of the results of the accrual models.

I use the following model (Equation 3), developed by Kothari et al. (2005), to estimate the level of discretionary accruals. To accomplish that, I estimate the level of non-discretionary accruals, and then I subtract it from the total accruals. The residual is the discretionary part of the total accruals.

$$\frac{TACC_{j,t}}{TA_{j,t-1}} = a_0 + a_1\left(\frac{1}{TA_{j,t-1}}\right) + a_2\left(\frac{\Delta REV_{j,t} - \Delta AR_{j,t}}{TA_{j,t-1}}\right) + a_3\left(\frac{PPE_{j,t}}{TA_{j,t-1}}\right) + a_4\, ROA_{j,t-1} + \sum_{k=1}^{9} a_{ki}\, INDUSTRY_{ik} + \varepsilon_{jt} \quad (3)$$

Subscripts *j* and *t* refer to the firm and the year, respectively. The dependent variable of the model is firm *j*'s total accruals ($TACC_{j,t}$) at year *t*, scaled by firm *j*'s lagged total assets ($TA_{j,t-1}$). In line with Li et al. (2008), total accruals are calculated as firm *j*'s net income before extraordinary items in year *t* minus firm *j*'s cash flows from operating activities excluding extraordinary items. The variables $\Delta REV_{j,t}$ and $\Delta AR_{j,t}$ refer to firm *j*'s change in revenues and change in accounts receivable from year *t-1* to year *t*. The intention is to include independent variables that refer to the non-discretionary part of

Table 3.2: Definition and measurement of variables for the accruals model

Variable	Description	Measurement
TACC	Total Accruals	Earnings before extraordinary items minus cash flows from operating activities excluding extraordinary items of the firm
TA	Total Assets	Total assets of the firm
ΔREV	Change in Revenues	Firm's revenues at year *t* minus revenues at year *t-1*
ΔAR	Change in Accounts Receivable	Firm's receivables at year *t* minus receivables at year *t-1*
PPE	Property, Plant & Equipment	Gross property, plant and equipment at year *t*
ROA	Return on Assets	Earnings before extraordinary items divided by total assets
NDA	Scaled Non-Discretionary Accruals	Estimated through the model in Equation (3)
DACC	Scaled Discretionary Accruals	Scaled total accruals minus estimated scaled non-discretionary accruals
ABSDA	Absolute Scaled Discretionary Accruals	Absolute value of the difference of total accruals and estimated scaled non-discretionary accruals

[21] Matching firms on industry and ROA is also a suggestion by Kothari et al. (2005).

total accruals. In line with the suggestions of Kothari et al. (2005), I account for the difference between $\Delta REV_{j,t}$ and $\Delta AR_{j,t}$[22], scaled by firm *j*'s lagged total assets. Cash revenues are the part of revenue accruals that a firm's management cannot manipulate and capture the working capital accruals (Jones, 1991; Kothari et al., 2005). In addition to changes in cash revenues, I include firm *j*'s gross property, plant, and equipment at year *t* ($PPE_{j,t}$) scaled by lagged total assets at year *t-1*. Property, Plant and Equipment is a non-discretionary component used to capture the effect of the long-term accruals. Finally, as discussed above, this model includes both a scaled intercept, an unscaled intercept, and firm *j*'s lagged Return on Assets ($ROA_{j,t-1}$) at year *t-1*, computed as earnings before extraordinary items divided by total assets, to mitigate misspecification concerns when using discretionary accrual models. Table 3.2 provides a summary of the variables used in the accruals model.

I estimate the scaled discretionary accruals ($DACC_{j,t}$) as the residuals of subtracting estimated scaled non-discretionary accruals, derived from equation (3), from the total accruals ($TACC_{j,t}$) scaled by the lagged total assets. Following the estimation of the discretionary accruals, I conduct a cross-sectional analysis, to investigate the investors' reaction to the events related to the Audit Arm Split for auditees of a Big 4 firm with a low financial reporting quality. However, both negative and positive scaled discretionary accruals indicate earnings management, so, I employ the absolute value of scaled discretionary accruals ($ABSDA_{ij}$) as the variable of interest in my model. This leads to the introduction of the model of Equation (4). For each event *i* , I estimate the following model:

$$CAR_{ij} = \beta_{0i} + \boldsymbol{\beta_{1i}}\, \boldsymbol{ABSDA_{ij}} + \beta_{2i}\, MVAL_{ij} + \beta_{3i}\, BMRATIO_{ij} + \beta_{4i}\, BETA_{ij} + \beta_{5i}\, LOSS_{ij} + \sum_{k=1}^{9} \beta_{ki}\, INDUSTRY_{ik} + \varepsilon_{ij} \quad (4)$$

Subscripts *i* and *j* indicate the event and the firm, respectively, as in the previous two sections. In the research model that I estimate, the dependent variable is CAR_{ij}, which is the Cumulative Abnormal Returns of firm *j* during the event *i* window, as investigated in the event study and the cross-sectional analysis of the previous sections. Once again, the coefficient of interest is β_{1i} , i.e., the coefficient of variable $ABSDA_{ij}$. The independent variable $ABSDA_{ij}$ is estimated according to the model mentioned above and represents firm *j*'s absolute scaled discretionary accruals on the most recent to event *i* annual report. To mitigate ongoing endogeneity issues, due to potential omitted correlated variables, I control for the size ($MVAL_{ij}$), the book-to-market ratio ($BMRATIO_{ij}$) and the systematic risk ($BETA_j$) of firm *j* during the event *i* window, similar to the previous cross-sectional analysis. In addition to those variables, I also control for the indicator variable $LOSS_{ij}$, in line with the explanation of the previous section. Finally, I classify firms across the ten industries as identified by the Standard Industrial Classification (SIC), based on the two-digit SIC code[23], and control for the industry fixed effects.

In addition to the testing mentioned above, I narrow down my sample to include only firms audited by Deloitte, particularly for the fourth event. The intuition behind this substitution is the same as the additional testing performed in the previous section since event four refers to Deloitte's confirmation that they initiated the audit split. Furthermore, I extend my research on investigating the association between the market reaction and the discretionary accruals by partitioning my sample into two groups, based on whether the estimated scaled discretionary accruals are positive or negative.

[22] Kothari et al. (2005) and Dechow et al. (1995) indicate that the change in accounts receivable, which is the credit sales of the year, can be manipulated by a firm. Therefore, only the change in revenues that is attributed to cash sales is considered non-discretionary.

[23] Refer to Table 4.4 in the Descriptive Statistics section for information about the industrial classification of the firms.

Then, I investigate whether there was a different reaction for firms with positive and negative scaled discretionary accruals. The intuition behind that is that managers are more inclined towards increasing discretionary accruals to meet or beat earnings benchmarks (Boone et al., 2012). Finally, since discretionary accruals are known to be noisy proxies for earnings management, I examine whether my results are robust to alternative measures of earnings management. I do so by using specific accrual measures, i.e., discretionary revenues, as proposed by McNichols & Stubben (2018).

4. Sample Selection and Descriptive Statistics

4.1 Sample Selection

To examine investors' reaction towards the events associated with the Audit Arm Split, I acquire data from several sources. First, I collect daily stock prices of firms traded in the London Stock Exchange market to calculate returns during the days of each event window from COMPUSTAT. Furthermore, I collect the daily FTSE-All Share Return Index values for the days pertaining to five different events from GLOBAL FINANCIAL DATA, to compute the Cumulative Abnormal Returns. In addition to the daily stock prices for the trading days of each event, I acquire daily stock price data, first for the fiscal year 2018, for the same pool of firms to estimate BETA. Then I acquire daily stock data for the estimation window before each event used as an alternative to the normal market return on the robustness testing. I also obtain annual financial statement data for the fiscal years ranging from 2017 to 2020, industry data and auditor data (excluding audit fees) from COMPUSTAT. These sets of data are either used directly as variables (BIG4, INDUSTRY) to the research models of the cross-sectional analyses or indirectly to either compute variables (BMRATIO, MVAL, ALTMAN, LOSS, TACC) or estimate variables (). Finally, I acquire data regarding audit fees from EIKON – THOMSON REUTERS (DATASTREAM).

I initiate my sample construction by obtaining daily stock price data to compute stock returns for firms traded in the London Stock Exchange market. I exclude companies that belong to the "Finance, Insurance and Real Estate" industry as suggested by prior literature[24]. Thus, I collect data regarding 1,176 non-financial companies traded in the London Stock Exchange for the span of the five events. This leads to an initial sample of 5,123 unique firm-event observations. Table 4.1 outlines the sample selection process, varying between the testing of the Firm's Auditor and the Financial Reporting Quality hypotheses. Table 4.1, Panel A reports the sampling process of the Firm's Auditor hypothesis. I proceed to drop firm-event observations with missing values on audit fee data and financial statement data. To elaborate, during the process, I drop 2,344 firm-event observations due to missing audit fees, due to merging different databases. Then, I drop 535 firm-event observations that lack financial statement data needed for computing variables. Finally, I proceed to winsorize the top and bottom 1 percent of the distribution of *AUDFEES*. I perform this winsorization because several observations contain typing errors[25] in their reported audit fees[26]. The final sample for testing the Firm's Auditor hypothesis consists of 2,244 firm-event observations.

[24] I proceed to exclude firms with SIC codes 6000-6999, referring to firms that belong to the industry "Finance, Insurance & Real Estate". According to Fields, Fraser & Wilkins (2004), these firms are associated with distinctive operating characteristics and different regulatory framework.

[25] It is not sensible for a firm to pay 56.9 billion euros in audit fees, when its total assets are 4.8 billion. Audit fees in general are reported in thousands whereas these observations were probably reported as the actual number.

[26] There is no significant effect of the winsorization on the results. Refer to Appendix C for the ex-winsorization results.

Table 4.1: Sample Selection and Sample Allocation per Event

The main sample for the Firm's Auditor hypothesis is the sample that I use for the Equation (2) in order to identify the differential market reaction between firms that were audited by a Big 4 auditor versus firms that were audited by a non-Big 4 auditor, for each event. I drop observations with missing values on audit fee data, financial statement data and without data to estimate beta. The main sample for the Financial Reporting Quality hypothesis is the sample that I use for both Equation (3) and (4) to assess whether investors reacted more positively to firms with a lower level of absolute discretionary accruals. In both sampling procedures, I also proceed to exclude firms with SIC codes 6000-6999, referring to firms that belong to the industry " Finance, Insurance & Real Estate". Events 1 through 5 refer to the events mapped in Table 2.1.

Panel A: Sample selection and allocation for the Firm's Auditor Hypothesis

	Sample						
Sampling Procedure	**Unique Firms**	**Unique Firm-Events**	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**
Non-financial companies on Compustat, traded in the London Stock Exchange market from 2019 to 2021	1,176	5,123	1,124	1,087	745	1,075	1,092
Less:							
Observations without audit fee data (Thomson Reuters - Datastream)	(475)	(2,344)	(631)	(442)	(216)	(508)	(547)
Observations without complete financial statement data (Compustat)	(113)	(535)	(103)	(161)	(66)	(128)	(77)
Main sample for the Firm's Auditor hypothesis	**588**	**2,244**	**390**	**484**	**463**	**439**	**468**

Panel B: Sample allocation for the Financial Reporting Quality Hypothesis

	Sample						
Sampling Procedure	**Unique Firms**	**Unique Firm-Events**	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 5**
Non-financial companies on Compustat, traded in the London Stock Exchange market from 2019 to 2021	1,176	5,123	1,124	1,087	745	1,075	1,092
Less:							
Observations without complete financial statement data to estimate discretionary accruals (Compustat)	(331)	(1,997)	(483)	(333)	(135)	(432)	(614)
Companies audited by a non-big 4 auditor (Compustat)	(503)	(1,787)	(322)	(465)	(348)	(374)	(278)
Main sample for the Financial Reporting Quality hypothesis	**342**	**1,339**	**319**	**289**	**262**	**269**	**200**
Less:							
Companies not audited by Deloitte (Compustat)	(288)	(1,285)	-	-	-	(215)	-
Sample for the *DELOITTE* additional testing	**54**	**54**	-	-	-	**54**	-

Table 4.1, Panel B demonstrates the sampling process of the Financial Reporting Quality hypothesis. I first drop firm-event observations that lack complete financial statement data needed to estimate discretionary accruals and beta, as well as firm-event observations that pertain to firms not audited by a Big 4 auditor. To elaborate, during the process, I drop 1,997 firm-event observations due to missing annual fundamentals needed to estimate discretionary accruals. Furthermore, I exclude 1,787 firm-event observations that are associated with auditees of a non-Big 4 auditor. The final sample for testing the Financial Reporting Quality hypothesis consists of 2,244 firm-event observations. For the additional test performed concerning the fourth event, I include only firms audited by Deloitte since the fourth event is associated with Deloitte initiating the split process.

Table 4.2: Positive and Negative Discretionary Accruals - Sample Allocation

The table illustrates the sampling allocation of the scaled discretionary accruals that occurred from Table 4.1, Panel B into positive and negative scaled discretionary accruals. I use the two groups of samples that occur from the classification of accruals into positive and negative, as additional testing to investigate whether the investors reacted particularly to positive or negative earnings management.

Panel A: Sample Allocation of Discretionary Accruals

	Sample Groups		
Discretionary Accruals Allocation	**Discretionary Accruals**	**Positive Discretionary Accruals**	**Negative Discretionary Accruals**
Event 1: FRC Chairman calls for a split of Big 4	319	148	171
Event 2: FRC Sends letters to Big 4 outlining operational separation	289	146	143
Event 3: FRC announces the operational separation of audit practices	262	134	128
Event 4: Deloitte confirms audit split	269	136	133
Event 5: FRC revises the operational separation of audit practices	200	94	106
Accruals allocation to positive and negative discretionary accruals	**1,339**	**658**	**681**
Deloitte Sample			
Event 4: Deloitte confirms audit split	54	29	25

Table 4.2, Panel A illustrates the allocation of firm-event observations based on whether the estimated discretionary accruals are positive or negative. I allocate the firms in such way to execute the additional testing on whether the sign of the accruals was associated with the market reactions to the event of the Audit Arm Split. As can be seen from the table, the sample of the estimated scaled discretionary accruals is 1,339 and is approximately equally split into 658 positive and 681 negative scaled discretionary accruals. Finally, the sample for the side test of Deloitte for the fourth event exclusively is 54 firm observations, split into 29 positive and 25 negative scaled discretionary accruals.

4.2 Descriptive Statistics

In this sub-section, I present the descriptive statistics for the regression models employed to test the Firm's Auditor hypothesis and the Financial Reporting Quality hypothesis. Sub-section 4.2.1 reports the classification of the sample into industries, the sample allocation into firms audited by a Big 4

auditor and firms audited by a non-Big 4 auditor, as well as the correlation matrix and the summary statistics for the variables employed in the regression model to test the Firm's Auditor hypothesis. Sub-section 4.2.2 presents the tables mentioned above except for the sample allocation into Big 4 and non-Big 4 auditees, since I have narrowed the sample for the Financial Reporting Quality hypothesis down to firms audited by a Big 4 auditor. Finally, in addition to these tables, I include the summary statistics for the variables employed to estimate discretionary accruals.

4.2.1 Descriptive Statistics for the Firm's Auditor Hypothesis

Table 4.3 presents the descriptive statistics for testing the Firm's Auditor hypothesis. Panel A reports the 2,244 firm-event sample classification into different industries, per event, under the two-digit SIC. As mentioned before, firms that are classified under the industry "Finance, Insurance, Real Estate" are excluded from the sample selection (SIC codes 6000-6999) due to peculiar operating characteristics and regulatory settings (Fields et al., 2004). Panel B reports the 2,244 firm-event sample distribution into firms audited by a Big 4 auditor and firms audited by a non-Big 4 auditor. As shown in Panel B, the sample of Big 4 auditees in Event 1 is substantially bigger than the sample of non-Big 4 auditees, but, from Event 2 onwards, the sample is approximately equally split.

Table 4.3, Panel C illustrates the correlation matrix of the variables used in the regression model to test the Firm's Auditor hypothesis (Equation 2). As reported on the panel, there is no indication of collinearity in the model, given that there is no significant linear relationship between the model's variables. However, it is evident from the correlation matrix in Panel C that the variable of interest, i.e., BIG4, is significantly positively correlated with MVAL (R = 0.60) and AUDFEES (R = 0.54). This positive association confirms that firms with a higher level of capitalization tend to employ a Big 4 firm as their auditor and that Big 4 firms charge higher audit fees. However, the most important result of the correlation matrix is the significant positive correlation (at 1% significance level) between CAR and BIG4. These results indicate a positive correlation between cumulative abnormal returns and firms audited by a Big 4 auditor. This correlation is a strong signal that the markets reacted more positively to firms audited by a Big 4 auditor. Nevertheless, these results need further investigation because the Pearson correlation matrix does not distinguish between events.

Table 4.3, Panel D reports the summary statistics of the continuous variables in the regression model of the Firm's Auditor hypothesis for three different groups of samples, the Big 4 auditee sample, the non-Big 4 auditee sample, and the total sample. As can be seen from Panel D, Big 4 auditees were associated with positive cumulative abnormal returns on average (mean = 0.11), whereas non-Big 4 auditees reported an average of -0.87. These results signal a positive association between the cumulative abnormal returns and the firms audited by a Big 4 firm. However, I cannot draw any inferences on this stage before testing the multivariate regression model, given that Big 4 auditees also present different firm characteristics. Namely, the auditees of Big 4 auditors present higher market capitalization, as the mean natural logarithm of the market value of these firms is 20.55, compared to non-Big 4 auditees, which present a mean of 18.05. These results are also in line with prior research, indicating that larger firms tend to engage with a Big 4 firm. A similar pattern is also present in *AUDFEES*. Firms audited by a Big 4 firm show, on average, higher reported audit fees, as the mean of the natural logarithm of audit fees is 13.59, whereas the mean for firms audited by a non-Big 4 auditor is 11.96, indicating that Big 4 firms charge higher audit fees.

Table 4.3: Descriptive Statistics for the Firms' Auditor Hypothesis

This table provides the descriptive statistics for firm-event observations in my sample. Panel A illustrates the industry classification of firm-event observations into industry groups, according to SIC. In the firm-event sample, I exclude firms that are coded under 6000-6999 of the SIC, marked as "Finance, Insurance, Real Estate" industry. Panel B reports the distribution of the sample into firms audited by a Big 4 auditor and firms audited by a non-Big 4 auditor ranging across five different events. Panel C presents the Pearson correlation matrix of the variables used in the regression model to test the Firm's Auditor hypothesis. Panel D reports the summary statistics of the variables used to test the Firm's Auditor hypothesis for three distinct groups, that of firms audited by a Big 4 auditor, that of companies audited by a non-Big 4 auditor and that of the full sample.

Panel A: Standard Industrial Classification of Sample

		Sample of 2,244 firm-event observations (Firm's Auditor hypothesis)				
		Event 1	**Event 2**	**Event 3**	**Event 4**	**Event 5**
1.	Agriculture, Forestry, Fishing	2	2	3	2	1
2.	Mining	51	66	58	62	54
3.	Construction	15	19	17	16	20
4.	Manufacturing	149	190	170	169	171
5.	Transportation & Public Utilities	28	30	30	28	32
6.	Wholesale Trade	13	14	15	15	15
7.	Retail Trade	36	37	43	33	47
8.	Finance, Insurance, Real Estate	0	0	0	0	0
9.	Services	95	125	125	113	126
10.	Non-Classifiable Establishments	1	1	2	1	2
		390	**484**	**463**	**439**	**468**

Panel B: Auditor Sample Allocation

	Sample of 2,244 firm-event observations (Firm's Auditor hypothesis)					
	Event 1	**Event 2**	**Event 3**	**Event 4**	**Event 5**	**Total**
Big 4 Auditor (BIG4 = 1)	258	233	239	227	238	**1,195**
Non-Big 4 Auditor (BIG4 = 0)	132	251	224	212	230	**1,049**
Total Sample	**390**	**484**	**463**	**439**	**468**	**2,244**

Panel C: Pearsonl Correlation Matrix – Firm's Auditor hypothesis

	CAR	BIG4	MVAL	AUDFEES	BMRATIO	BETA	ALTMAN	LOSS
CAR	1							
BIG4	0.07***	1						
MVAL	0.05***	0.60***	1					
AUDFEES	0.06***	0.54***	0.73***	1				
BMRATIO	-0.02	0.00	-0.17***	0.08***	1			
BETA	0.03	0.11***	0.15***	0.07***	0.00	1		
ALTMAN	0.03	-0.03	-0.06***	-0.05***	0.57***	-0.01	1	
LOSS	-0.04*	-0.35***	-0.49***	-0.40***	0.10***	0.04**	0.03	1

Note: *p<0.1; **p<0.05; ***p<0.01

Table 4.3 (Continue)

Panel D: Summary Statistics of the Continuous Variables of the Firm's Auditor hypothesis

	Big 4 Auditees (BIG4 = 1) – 1195 firm-event obs.					Non-Big 4 Auditees (BIG4 = 0) – 1049 firm-event obs.					Total Sample of 2,244 firm-event obs.				
Variables	**Mean**	**Median**	**Std. Dev.**	**Min.**	**Max**	**Mean**	**Median**	**Std. Dev.**	**Min.**	**Max**	**Mean**	**Median**	**Std. Dev.**	**Min.**	**Max**
CAR	0.11	0.00	4.89	-23.90	48.20	-0.87	-1.33	7.99	-34.83	34.21	-0.35	-0.39	6.67	-34.83	48.20
MVAL	20.55	20.66	1.83	14.91	27.39	18.05	17.96	1.68	13.27	25.00	19.33	19.44	2.19	13.27	27.39
AUDFEES	13.59	13.69	1.41	10.20	16.96	11.96	11.74	1.28	9.85	16.96	12.65	12.88	1.60	9.85	16.96
BMRATIO	1.14	2.19	3.98	0.02	56.74	1.02	2.17	4.83	0.01	87.47	1.08	2.18	4.40	0.01	87.47
BETA	0.71	0.84	1.48	-0.02	10.95	0.54	0.37	0.92	-0.05	12.74	0.70	0.54	1.33	-0.05	12.74
ALTMAN	2.21	2.27	1.49	-6.12	7.90	1.71	2.19	2.96	-7.75	5.95	2.01	2.21	2.39	-7.76	7.99

Notes: CAR is the cumulative abnormal returns of a firm during the 3-day event window, reported as a percentage (e.g. the mean CAR of Big 4 auditees is equal to 0.11 percentage points). I proceed to calculate CAR through Equation (1).
BIG4, is the variable that distinguishes auditees of a Big 4 firm from those audited by a non-Big 4 auditor. The variable BIG4 equals 1, if a firm's auditor is a Big 4 firm, and 0 if otherwise.
AUDFEES is the natural logarithm of audit fees as reported on the most recent, to each event, annual report.
MVAL and BMRATIO represent the average market value of a firm during an event and the book-to-market ratio calculated as the book value on the most recent to each event annual report, divided by the market value during an event, respectively.
BETA accounts for a firm's systematic risk and is calculated based on the fiscal year 2018 data through the use of the CAPM model.
ALTMAN is the Altman's z-score, which is a proxy of financial distress of a firm during an event and is calculated according to the equation on footnote 18.
LOSS is an indicator variable that is equal to 1 if the income before extraordinary items of a firm on the most recent, to each event, annual report, is negative, and 0 if otherwise.
Events 1 through 5 refer to the events mapped in Table 2.1.

4.2.2 Descriptive Statistics for the Financial Reporting Quality Hypothesis

Table 4.4 presents the descriptive statistics for the testing of the Financial Reporting Quality hypothesis. Similar to the previous section, Panel A reports the 1,339 firm-event sample classification into different industries, per event, under the two-digit SIC. As mentioned before, I exclude firms that belong to the industry "Finance, Insurance, Real Estate". Table 4.4, Panel B illustrates the correlation matrix of the variables used in the regression model to test the Financial Reporting Quality hypothesis (Equation 4). As reported on the panel, there are no collinearity concerns present in the model, given that there is no significant linear relationship between the variables. Additionally, there are no significant correlations between the variables used in the regression model, except for the correlation between MVAL and BETA (R=0.50), suggesting a positive correlation between the market capitalization of a firm and its financial health. The correlation between CAR and the variable of interest, i.e. ABSDA, yields insignificant results. Thus, the correlation between the market reaction towards the events surrounding the Audit Arm Split and the level of earnings management is -0.02 and insignificant. However, as stated in the previous section, further investigation is needed, because the Pearson correlation matrix does not distinguish between events.

Table 4.4, Panel C reports the summary statistics of the variables employed to estimate the scaled discretionary accruals, for a sample of 1,339 firm-event observations, in line with Kothari et al. (2005). Table 4.4, Panel D reports the summary statistics of the variables used in the regression model to test the Financial Reporting Quality hypothesis for the same sample. As can be seen from Panel C, the scaled variables used to estimate the scaled discretionary accruals report similar mean and median values and small standard deviation, which indicate that there are no significant outliers.

Table 4.4, Panel D reports the summary statistics of the continuous variables in the regression model of the Financial Reporting Quality hypothesis for three different groups of samples. The first set of summary statistics accounts for the total sample of 1,339 firm-event observations. The remaining two groups of samples report the summary statistics for firms with high and firms with low absolute scaled discretionary accruals. I classify firms into those two groups by splitting the sample into the top and bottom 50 percent of scaled absolute discretionary accruals. In all groups of firm-event observations, the mean of CAR is positive. However, the median of firms with high absolute scaled discretionary accruals (median = -0.15) is more negative than firms with low absolute scaled discretionary accruals (median = 0.11). These results indicate that more than 50 percent of firms with high absolute scaled discretionary accruals are associated with negative Cumulative Abnormal Returns. Yet, these results are not significant enough to signal an association between the Cumulative Abnormal Returns and the level of a firm's discretionary accruals. I cannot draw any inferences at this stage before testing the multivariate regression model. The summary statistics reported above on Panel D do not distinguish between the events associated with the Audit Arm Split.

Table 4.4: Descriptive Statistics for the Financial Reporting Quality Hypothesis

This table provides the descriptive statistics for firm-event observations in my sample. Panel A illustrates the industry classification of firm-event observations into industry groups, according to SIC. In the firm-event sample, I exclude firms that are coded under 6000-6999 of the SIC, firms that belong to the "Finance, Insurance, Real Estate" industry. Panel B presents the Pearson correlation matrix of the variables used in the regression model to test the Financial Reporting Quality hypothesis. Panel C reports the summary statistics of the variables used to estimate the scaled discretionary accruals by using the model proposed by Kothari et al. (2005). Panel D reports the summary statistics of the variables used to test the Financial Reporting Quality hypothesis for three distinct groups, that of firms with a high absolute scaled discretionary accruals, that of firms with low absolute discretionary accruals and that of the full sample. Both firms with high and low absolute discretionary accruals report similar mean Cumulative Abnormal Returns, but the median is more negative in the high absolute scaled discretionary accruals sample.

Table 4.4 (Continue)

Panel A: Standard Industrial Classification of Sample

	Industry	Sample of 1,339 firm-event observations (Financial Reporting Quality hypothesis)				
		Event 1	**Event 2**	**Event 3**	**Event 4**	**Event 5**
1.	Agriculture, Forestry, Fishing	3	3	3	3	2
2.	Mining	31	22	22	22	18
3.	Construction	15	15	15	14	12
4.	Manufacturing	114	100	89	95	73
5.	Transportation & Public Utilities	28	28	26	27	15
6.	Wholesale Trade	11	9	8	9	5
7.	Retail Trade	33	32	29	30	23
8.	Finance, Insurance, Real Estate	0	0	0	0	0
9.	Services	82	78	68	67	51
10.	Non-Classifiable Establishments	2	2	2	2	1
Total Sample		**319**	**289**	**262**	**269**	**200**

Panel B: Pearson Correlation Matrix - Financial Reporting Quality hypothesis

	CAR	ABSDA	DACC	MVAL	BMRATIO	BETA	LOSS
CAR	1						
ABSDA	-0.02	1					
DACC	-0.04	-0.17***	1				
MVAL	0.08***	-0.22***	0.06**	1			
BMRATIO	-0.06**	0.08***	-0.10***	-0.24***	1		
BETA	0.05*	-0.05*	-0.03	0.50***	0.01	1	
LOSS	0.01	0.26***	-0.25***	-0.37***	0.25***	0.07**	1

Notes: *p<0.1; **p<0.05; ***p<0.01

Panel C: Summary Statistics of the Variables for the Discretionary Accruals Estimation

Variables	Sample of 1,339 firm-event observations audited by a Big 4 auditor (Discretionary Accruals Estimation)				
	Mean	**Median**	**Standard Deviation**	**Min.**	**Max**
Scaled TACC	-0.08	-0.06	0.13	-1.08	1.18
Scaled Cash Sales	0.03	0.03	0.15	-2.31	2.33
Scaled PPE	0.51	0.38	0.47	0.00	3.73
ROA	0.03	0.05	0.25	-0.83	0.40

Table 4.4 (Continue)

Panel D: Summary Statistics of the Continuous Variables of the Financial Reporting Quality hypothesis

	Total Discretionary Accruals Sample (1,339 firm-event obs.)					High Absolute Discretionary Accruals Sample (668 firm-event obs.)					Low Absolute Discretionary Accruals Sample (671 firm-event obs.)				
Variable	**Mean**	**Median**	**Standard Deviation**	**Min.**	**Max**	**Mean**	**Median**	**Standard Deviation**	**Min.**	**Max**	**Mean**	**Median**	**Standard Deviation**	**Min.**	**Max**
CAR	0.03	0.01	4.21	-14.90	12.15	0.02	-0.15	4.54	-14.90	12.15	0.03	0.11	3.98	-10.49	11.39
ABSDA	0.05	0.04	0.08	0.00	0.35	0.09	0.07	0.05	0.04	0.35	0.02	0.02	0.01	0.00	0.04
DACC	-0.01	0.00	0.14	-0.35	0.22	-0.01	-0.04	0.10	-0.35	0.22	0.00	0.00	0.02	-0.04	0.04
MVAL	20.45	20.41	1.86	14.91	27.39	20.24	20.22	1.84	14.91	27.39	20.66	20.67	1.86	14.92	27.05
BMRATIO	2.20	1.07	4.06	0.01	56.74	2.32	1.10	4.55	0.01	56.74	2.09	1.05	3.50	0.06	35.91
BETA	0.81	0.69	1.41	-0.04	10.62	0.07	0.06	1.52	-0.02	10.62	0.87	0.73	1.58	-0.04	7.45

Notes: TACC is the total accruals of a firm computed as the net income before extraordinary items minus cash flows from operating activities excluding extraordinary items, using data from the most recent to the respective event, annual report.

Scaled Cash Sales is the difference between the change in firm's revenues and the change in firm's accounts receivable from year t-1 to year t, scaled by the lagged total assets, using data from the most recent to the respective event, annual report, and the annual report of the previous fiscal year.

Scaled PPE is the gross property, plant and equipment of a firm on year t, scaled by the lagged total assets, using data from the most recent to the respective event, annual report, and the annual report of the previous fiscal year.

ROA is the lagged Return on Assets of a firm, computed as earnings before extraordinary items divided by total assets, both measured on the fiscal year prior to the most recent, on each event, fiscal year (t-1).

CAR is the cumulative abnormal returns of a firm during the 3-day event window, reported as a percentage (e.g. the mean CAR of firms with low level of discretionary accruals is equal to 0.03 percentage points). I proceed to calculate CAR through Equation (1).

DACC are the scaled discretionary accruals of a firm, estimated as the residual of the Equation (3).

ABSDA is the absolute value of the scaled discretionary accruals, i.e. the absolute value of DACC.

AUDFEES is the natural logarithm of audit fees as reported on the most recent, to each event, annual report.

MVAL and BMRATIO represent the average market value of a firm during an event and the book-to-market ratio calculated as the book value on the most recent to each event annual report, divided by the market value during an event, respectively.

BETA accounts for a firm's systematic risk and is calculated based on the fiscal year 2018 data through the use of the CAPM model.

LOSS is an indicator variable that is equal to 1 if the income before extraordinary items of a firm on the most recent, to each event, annual report, is negative, and 0 if otherwise.

Events 1 through 5 refer to the events mapped in Table 2.1.

5. Empirical Analysis and Results

In this section, I perform an empirical analysis by interpreting, both statistically and economically, the results of univariate and multivariate tests on both the Firm's Auditor (section 5.1.) and the Financial Reporting Quality (section 5.2) hypotheses. I also proceed to explicate the information channeled, regarding the investors' expectations about the benefits and costs associated with the Audit Arm Split through the suggested results.

5.1 Firm's Auditor Hypothesis Testing

Table 5.1, Panel A provides the univariate test results on the investors' reaction to the events associated with the Audit Arm Split by partitioning the sample of firms into companies audited by a Big 4 auditor and companies audited by a non-Big 4 auditor. As can be seen from the panel, the difference between the average cumulative abnormal returns of Big 4 and non-Big 4 auditees is positive and significant in Events 2 and 5, whereas in the other events, the results are insignificant. The results of the univariate test on Event 2 suggest that firms audited by a Big 4 auditor were associated on average with 2.41 percentage points (t-statistic of 3.77) more positive cumulative abnormal returns compared to non-Big 4 auditees. Event 2 refers to the event window around the announcement of the FRC that they have informed the Big 4 firms to prepare for the operational

Table 5.1: The Market Reaction to the Audit Arm Split and Firm's Auditor

This table reports the results of the market reaction to the events related to the operational separation of the audit practices in reference to the Firm's Auditor hypothesis testing. Panel A presents the results of the univariate test on the investors' reaction to the events associated with the operational separation of the audit, by partitioning the sample of firms into companies audited by a Big 4 auditor and companies audited by a non-Big 4 auditor. I find positive and significant (at a two-tailed 1% significance level) difference in the average Cumulative Abnormal Returns of Big 4 and non-Big 4 auditees. Panel B reports the results of the multivariate cross-sectional test on the market reactions associated with the events of the Audit Arm Split in regard to the Firm's Auditor hypothesis testing. I find that after including industry-fixed effects and controlling for variables that are associated with the variable of interest (BIG4) and/or might be correlated with the Cumulative Abnormal Returns, firms audited by a Big 4 auditor are associated with more positive and significant (at a two-tailed 5% significance level) Cumulative Abnormal Returns compared to non-Big 4 auditees. In both Panel A and B, the numbers presented in parenthesis are the t-statistics of the respective coefficient. Events 1 through 5 refer to the events mapped in Table 2.1, whereas the Event 4 Deloitte, refers to the specific variance of the model in Equation (2) where I substitute the variable BIG4 with the variable DELOITTE and compare firms the market reaction on Deloitte auditees against non-Deloitte auditees.

Panel A: Univariate Analysis of Sample Partitioned by Firm's Auditor

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
Mean CAR (BIG4=1)	0.59	-0.19	-0.25	-0.58	-0.52	0.93
Mean CAR (BIG4=0)	1.43	-2.62	-0.07	-0.25	-0.41	-1.67
Difference	**-0.88**	**2.41*** **	**-0.23**	**-0.34**	**-0.10**	**2.60*** **
	(-1.46)	(3.77)	(-0.36)	(-0.60)	(-0.29)	(4.64)
Observations	390	484	463	439	439	468
Notes:	*p<0.1; **p<0.05; ***p<0.01					

Table 5.1 (Continue)

Panel B: Cross Sectional Analysis in the Market Reaction and Firm's Auditor

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
INTERCEPT	5.42	-5.87	-0.67	1.70	2.64	-2.21
	(1.46)	(-1.44)	(-0.16)	(0.47)	(0.78)	(-0.63)
BIG4	**-0.26**	**1.72****	**-0.10**	**-0.41**	**0.19**	**1.56****
	(-0.30)	**(2.03)**	**(-0.12)**	**(-0.57)**	**(0.19)**	**(2.21)**
Control Variables						
AUDFEES	-0.03	0.34	-0.25	-0.40	-0.42	1.57***
	(-0.11)	(0.98)	(-0.80)	(-1.39)	(-1.49)	(5.82)
MVAL	-0.20	-0.04	0.20	0.20	0.16	-0.97***
	(-0.81)	(-0.13)	(0.78)	(0.90)	(0.75)	(-4.28)
BMRATIO	0.03	-0.08	-0.20*	-0.23***	-0.24***	0.06
	(0.35)	(-0.63)	(-1.92)	(-2.99)	(-3.06)	(0.63)
ALTMAN	0.02	0.00	0.03*	0.06***	0.06***	-0.01
	(1.46)	(0.26)	(1.80)	(3.51)	(3.55)	(-0.44)
BETA	0.02	0.34	0.18	0.06	0.05	0.33
	(0.07)	(1.41)	(0.78)	(0.29)	(0.27)	(1.27)
LOSS	-0.25	-0.38	0.59	-0.97	-0.94	-1.60**
	(-0.29)	(-0.43)	(0.69)	(-1.25)	(-1.21)	(-2.30)
INDUSTRY F.E.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
Observations	390	484	463	439	439	468
R^2	0.017	0.036	0.019	0.054	0.047	0.134
Adjusted R^2	-0.001	0.011	0.004	0.039	0.032	0.121
F Statistic	0.940 (df = 15; 376)	2.815*** (df = 15; 468)	1.244 (df = 15; 447)	3.522*** (df = 15; 423)	3.021*** (df = 15; 423)	10.151*** (df = 15; 452)

Notes: CAR is the cumulative abnormal returns of a firm during the 3-day event window, reported as a percentage. I proceed to calculate CAR through Equation (1).
BIG4, is the variable that distinguishes auditees of a Big 4 firm from those audited by a non-Big 4 auditor. The variable BIG4 equals 1, if a firm's auditor is a Big 4 firm, and 0 if otherwise.
AUDFEES is the natural logarithm of audit fees as reported on the most recent, to each event, annual report.
MVAL and BMRATIO represent the average market value of a firm during an event and the book-to-market ratio calculated as the book value on the most recent to each event annual report, divided by the market value during an event, respectively.
BETA accounts for a firm's systematic risk and is calculated based on the fiscal year 2018 data through the use of the CAPM model.
ALTMAN is the Altman's z-score, which is a proxy of financial distress of a firm during an event and is calculated according to the equation on footnote 18.
LOSS is an indicator variable that is equal to 1 if the income before extraordinary items of a firm on the most recent, to each event, annual report, is negative, and 0 if otherwise.
*p<0.1; **p<0.05; ***p<0.01

separation of the audit division. I also find similar results for the event window of Event 5, where the FRC strengthened the rules of the operational separation of the audit practices. The results of Event 5 suggest that companies audited by a Big 4 auditor were associated on average with 2.60 percentage points (t-statistic of 4.64) more positive cumulative abnormal returns compared to non-Big 4 auditees.

The difference in the Cumulative Abnormal Returns between Big 4 and non-Big 4 auditees during Events 1, 2, and 4 are insignificant. There are two plausible reasons to I can attribute the insignificance of these results. First, the market may have considered that the implementation of the split will not improve the financial reporting quality by improving audit independence. This suggests that the investors would not react to the announcement of the news. The second plausible explanation lies in the principles of the event study theory. In general, the change in probability of the regulation indeed taking effect also determines the abnormal returns in event studies. I attribute the insignificant results for the 1st Event to the second reason because the market might not consider that the information channeled indeed implies that the Audit Arm Split will take effect. The 1st Event refers to the newly appointed head of the FRC expressing their wish to the government for an operational separation. Furthermore, I consider that the results in Events 3 and 4 (in both versions of the regression model) are insignificant because the announcement of these events did not provide any new information that the previous events had not already channeled.

Overall, these results indicate that investors considered the information channeled by the announcement of the Events previously mentioned to be significant. The overall reaction is positive, signaling that investors expect that the Audit Arm Split will improve the financial reporting quality of Big 4 auditees due to the improved audit independence. However, these results should be treated with caution and therefore should be further tested because the variable of interest (BIG4) might be correlated with omitted variables that affect the Cumulative Abnormal Returns. The omission of these variables creates a bias in the estimated coefficient of the univariate test. Therefore, I proceed to perform a multivariate approach, as Equation (2) states, to control for those omitted variables.

Table 5.1, Panel B reports the results of the multivariate cross-sectional test performed to investigate whether investors reacted more positively (or negatively) to Big 4 auditees around the events associated with the Audit Arm Split. I perform the cross-sectional analysis by including control variables and industry-fixed effects, as explained in sub-section 3.2.1. After controlling for the level of the audit fees, the market value of the firm and other variables known to be associated with the size of the firm's auditor and/or have an effect on the Cumulative Abnormal Returns, and following the inclusion of industry-fixed effects, the results of the multivariate analysis show similar results to the univariate test. To elaborate, the coefficient of the variable BIG4 is positive and statistically significant (at a two-tailored 5% significance level), showing that firms audited by a Big 4 auditor were associated on average with 1.72 percentage points (t-statistic of 2.03) for Event 2. Similarly, the results indicate that firms audited by a Big 4 auditor during Event 5 were associated on average with 1.56 percentage points (t-statistic of 2.21) more positive cumulative abnormal returns than non-Big 4 auditees. These results indicate that the market revised the probability of the regulation taking effect and considered that the forthcoming audit split regulation would affect the shareholder wealth by increasing the financial reporting quality. Finally, as with the univariate test, the other three events, including the additional test performed for the 4th event, yield statistically insignificant results. As explained above, I expect that the insignificance of these results is related to two possible explanations. Either that the market did not expect that the audit separation regulation would be implemented (Event 1) or that the respective event is not channeling new information to the market (Events 3 & 4).

In conclusion, investors reacted positively to the announcement of several events related to the Audit Arm Split, which confirms the Firm's Auditor hypothesis (Hypothesis 1) that investors'

reaction to the events associated with the Audit Arm Split was more favorable for companies audited by a Big 4 firm.

5.2 Financial Reporting Quality Hypothesis Testing

Table 5.2, Panel A reports the univariate test results on the investors' reaction to the events surrounding the Audit Arm Split by splitting the sample of firms in half into companies with high and companies with low scaled absolute discretionary accruals. Companies with high scaled absolute discretionary accruals are firms with scaled absolute discretionary accruals higher than the median. On the contrary, firms with low scaled absolute discretionary accruals are those with their accruals level being lower or equal to the median. Panel A indicates that the difference between the average cumulative abnormal returns of firms with high and low scaled absolute discretionary accruals is negative and statistically significant solely in Event 1, whereas in the other events, the results are insignificant. The results of the univariate test on Event 1 suggest that firms with high scaled absolute discretionary accruals, which is a signal of earnings management as explained before, were associated

Table 5.2: The Market Reaction to the Audit Arm Split and Financial Reporting Quality

This table reports the results of the market reaction to the events related to the operational separation of the audit practices in reference to the Financial Reporting Quality hypothesis testing. Panel A presents the results of the univariate test on the investors' reaction to the events associated with the operational separation of the audit, by partitioning the sample of firms into companies with high and companies with low level of scaled absolute discretionary accruals. I find negative and significant (at a two-tailed 5% significance level) difference in the average Cumulative Abnormal Returns of firms with high and firms with low level of absolute scaled discretionary accruals. Panel B reports the results of the multivariate cross-sectional test on the market reactions associated with the events of the Audit Arm Split in regard to the Financial Reporting Quality hypothesis testing. I find that after including industry-fixed effects and controlling for variables that are associated with the variable of interest (ABSDA) and/or might be correlated with the Cumulative Abnormal Returns, there is no significant reaction of the market in the level of scaled absolute accruals in any of the events examined. However, I proceed to perform an additional test, resulting in Panel C, where I partition my sample of firm-observations to firms with positive scaled discretionary accruals and firms with negative scaled discretionary accruals. I find that the markets reacted negatively, with a 5% level of statistical significance, in the level of positive scaled discretionary accruals, which is in line with the results of Panel A.
In both Panel A and B, the numbers presented in parenthesis are the t-statistics of the respective coefficient. Events 1 through 5 refer to the events mapped in Table 2.1, whereas in the Event 4 Deloitte, I narrow down the sample of firms, from firms audited by a Big 4 auditor to firms audited exclusively by Deloitte and perform a comparison of the effect of the level of scaled discretionary accruals on the Cumulative Abnormal Returns.

Panel A: Univariate Test of Sample Partitioned by Magnitude of Scaled Absolute Discretionary Accruals

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
Mean CAR (High ABSDA)	-0.02	-0.17	-0.70	-0.40	-0.36	1.27
Mean CAR (Low ABSDA)	0.80	-0.59	-0.42	-0.21	0.07	0.62
Difference	**-0.82****	**0.42**	**-0.28**	**-0.19**	**-0.43**	**0.65**
	(2.09)	(0.85)	(-0.58)	(0.42)	(0.58)	(0.99)
Observations	319	389	262	269	54	200
Notes:	*p<0.1; **p<0.05; ***p<0.01					

Table 5.2 (Continue)

Panel B: Cross Sectional Analysis in the Market Reaction and Absolute Discretionary Accruals

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
INTERCEPT	2.19	-7.48*	-4.78	-0.79	0.51	-6.95
	(0.73)	(-1.80)	(-1.23)	(-0.24)	(0.07)	(-1.22)
ABSDA	**-2.80**	**6.45**	**1.29**	**0.64**	**-0.72**	**0.97**
	(-0.69)	(1.08)	(0.23)	(0.31)	(-0.07)	(0.14)
Control Variables						
MVAL	0.07	0.31*	0.08	0.12	0.13	0.17
	(0.57)	(1.88)	(0.52)	(0.91)	(0.40)	(0.77)
BMRATIO	0.08	0.17*	-0.10	-0.17***	-0.14	0.06
	(1.33)	(1.81)	(-1.42)	(-3.80)	(-1.12)	(0.56)
BETA	0.02	0.33	-0.24	0.07	-0.47	-0.07
	(0.15)	(1.61)	(1.32)	(0.46)	(-0.32)	(-0.32)
LOSS	-0.44	-0.48	-0.36	-0.13	1.14	2.94
	(-0.78)	(-0.66)	(-0.51)	(-0.21)	(0.90)	(3.77)
INDUSTRY F. E.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
Observations	319	389	262	269	54	200
R^2	0.084	0.117	0.049	0.102	0.145	0.147
Adjusted R^2	0.045	0.075	-0.001	0.056	-0.133	0.087
F Statistic	2.157** (df = 13; 305)	2.800*** (df - 13;275)	0.976 (df = 13; 248)	2.221*** (df = 13;255)	0.521 (df = 13; 40)	2.466*** (df = 13;186)

Notes: CAR is the cumulative abnormal returns of a firm during the 3-day event window, reported as a percentage. I proceed to calculate CAR through Equation (1).
ABSDA is the absolute value of the scaled discretionary accruals, i.e., the absolute value of the estimation of discretionary accruals as the residual of the Equation (3).
MVAL and BMRATIO represent the average market value of a firm during an event and the book-to-market ratio calculated as the book value on the most recent to each event annual report, divided by the market value during an event, respectively.
BETA accounts for a firm's systematic risk and is calculated based on the fiscal year 2018 data through the use of the CAPM model.
LOSS is an indicator variable that is equal to 1 if the income before extraordinary items of a firm on the most recent, to each event, annual report, is negative, and 0 if otherwise.
Events 1 through 5 refer to the events mapped in Table 2.1, whereas the Event 4 Deloitte, refers to the specific variance of the model in Equation (2) where I proceed to narrow down my sample from Big 4 auditees to Deloitte auditees.
*p<0.1; **p<0.05; ***p<0.01

Table 5.2 (Continue)

Panel C: Cross Sectional Analysis in the Market Reaction and Sign of Discretionary Accruals

	Dependent Variable : CAR											
	Firms with Positive Scaled Discretionary Accruals						Firms with Negative Scaled Discretionary Accruals					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
INTERCEPT	5.17	-3.76	2.07	0.77	1.08	-2.25	-2.48	-6.74	-6.49	-2.49	1.18	-6.76
	(1.39)	(-0.69)	(0.38)	(0.16)	(0.15)	(-0.30)	(-0.60)	(-1.12)	(-1.24)	(-0.54)	(0.07)	(-0.89)
ABSDA	**-11.51****	**3.33**	**-8.41**	**-1.95**	**-21.17**	**3.44**	**4.11**	**6.87**	**8.79**	**1.02**	**8.04**	**2.26**
	(-2.00)	(0.37)	(-0.93)	(-0.26)	(-1.40)	(0.31)	(0.71)	(0.80)	(1.15)	(0.17)	(0.55)	(0.23)
Control Variables												
MVAL	-0.18	-0.00	-0.09	0.00	0.06	0.12	0.33*	0.24	0.16	0.20	-0.02	0.01
	(-0.99)	(-0.02)	(-0.35)	(0.01)	(0.18)	(0.33)	(1.80)	(0.88)	(0.64)	(0.93)	(-0.03)	(0.03)
BMRATIO	-0.04	0.09	-0.31**	-0.22**	-0.19	-0.15	0.11*	0.23*	0.02	-0.13**	0.07	0.34**
	(-0.16)	(0.45)	(-2.56)	(-2.35)	(-0.80)	(-1.04)	(1.70)	(1.77)	(0.20)	(-2.16)	(0.35)	(2.13)
BETA	-0.10	2.37*	0.82	-0.11	-0.00	1.63	0.02	0.27	0.28	0.04	-0.07	-0.07
	(-0.10)	(1.91)	(0.66)	(-0.11)	(-0.00)	(0.88)	(0.15)	(1.23)	(1.52)	(0.24)	(-0.02)	(-0.32)
LOSS	-0.43	-1.61	0.40	-0.65	-1.68	3.92***	-0.78	-0.06	-1.29	-0.14	-0.82	1.82*
	(-0.51)	(-1.39)	(0.33)	(-0.59)	(-0.61)	(3.27)	(-0.98)	(-0.05)	(-1.35)	(-0.17)	(-0.36)	(1.71)
INDUSTRY F.E.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
Observations	148	146	134	136	29	94	171	143	128	133	25	106
R^2	0.142	0.192	0.071	0.093	0.502	0.195	0.108	0.105	0.105	0.142	0.34	0.198
Adjusted R^2	0.073	0.125	-0.013	0.012	0.179	0.098	0.034	0.014	0.003	0.049	-0.321	0.085
F Statistic	2.053** (df = 11; 136)	2.888*** (df = 11; 134)	0.849 (df = 11; 122)	1.150 (df = 11; 124)	1.557 (df = 11; 17)	2.006** (df = 10;83)	1.461 (df = 13; 157)	1.160 (df = 13; 129)	1.029 (df = 13; 114)	1.518 (df = 13; 119)	0.514 (df = 12; 12)	1.752* (df = 13; 92)
Notes:	*p<0.1; **p<0.05; ***p<0.01											

with more negative Cumulative Abnormal Returns than firms with low scaled absolute discretionary accruals. To elaborate, firms with high scaled absolute discretionary accruals were associated on average with 0.82 percentage points (t-statistic of 2.09) more negative cumulative abnormal returns compared to companies with low scaled absolute discretionary accruals. These results oppose the Financial Reporting Quality hypothesis, where I expect that firms with high discretionary accruals are associated with more positive Cumulative Abnormal Returns. However, as mentioned in the previous section, the results of univariate tests should be interpreted with caution. There may be omitted variables associated with the scaled absolute discretionary accruals that may also affect the Cumulative Abnormal Returns. Such an omission creates a bias in the estimated coefficient of the univariate test. Therefore, I proceed to perform a multivariate approach, as stated in Equation (4), to control for those omitted variables.

Table 5.2, Panel B reports the results of the multivariate cross-sectional test performed to investigate whether investors reacted more positively to firms with high discretionary accruals. I conduct this cross-sectional analysis by including control variables and industry-fixed effects, as explained in sub-section 3.2.2. After controlling for variables known to be associated with the level of discretionary accruals and/or affect the Cumulative Abnormal Returns, and following the inclusion of industry-fixed effects, I yield insignificant results about the effect of the level of scaled absolute discretionary accruals on the Cumulative Abnormal Returns. These results are consistently insignificant for all five events and including the additional testing for the Deloitte sample.

However, absolute discretionary accruals do not differentiate between positive and negative accruals, whereas investors might differentiate their reaction for firms with positive and firms with negative scaled discretionary accruals. For this reason, I perform an additional test by partitioning scaled discretionary accruals based on their sign. Table 5.2, Panel C reports the results of this additional test performed. Confirming the univariate test results, I find that in the sample of positive scaled discretionary accruals, and during the 1st event, firms with higher positive scaled discretionary accruals were associated with negative Cumulative Abnormal Returns. To elaborate, the coefficient of the variable ABSDA is negative and statistically significant (at a two-tailored 5% significance level), signifying that if the ratio of discretionary accruals to lagged total assets increased by 1%[27], then the Cumulative Abnormal returns would be reduced by 0.115 percentage points. Thus, I find contradictory results to the Financial Reporting Quality hypothesis, even if I expected that the markets would react positively to firms with high discretionary accruals. A possible explanation to this reaction, also in line with the results of Li et al. (2008) in the examination of a similar setting, is that the adverse reaction to firms with high discretionary accruals is an expression of the concerns of the market on the scandals that have pushed the FRC towards implementing the operational separation. The results for the remaining events regarding the positive scaled discretionary accruals and all the results of the negative scaled discretionary accruals are statistically insignificant.

Overall, the Financial Reporting Quality hypothesis testing results are primarily insignificant except for the results related to the 1st event. Both the univariate analysis and the additional test that partitions scaled discretionary accruals based on the sign yield negative and significant results, contradictory to my expectations.

[27] Alternatively, an increase in the discretionary accruals by 1% times lagged total assets is associated with minus 0.12 percentage points of Cumulative Abnormal Returns.

6. Robustness Tests

In my research, I compute the Cumulative Abnormal Returns on a 3-day event window to account for the concept of market reaction. In order to increase the validity of my results and test the robustness of my findings, I recreate the analysis of both the Firm's Auditor and the Financial Reporting Quality hypotheses by using alternative event windows, a 5-day and a 10-day event window. Tables 6.1 to 6.4 report the results on the main variables of interest when using these alternative windows. Concerning the Firm's Auditor hypothesis, Table 6.1 Panel A indicates that my results are robust to using either a 5-day or a 10-day window for Event 5. However, for Event 2, the results are not robust in any alternative event window size, reporting contradictory results overall. Nevertheless, I consider that the date of the Event 2 is close to the Coronavirus outbreak and the lockdowns, which might disrupt the results. Thus, I deem the use of a larger event window inappropriate.

Table 6.1: Univariate Robustness Test on Firm's Auditor Hypothesis

This table test the robustness of the results of the market reaction to the events related to the operational separation of the audit practices in reference to the Firm's Auditor hypothesis testing, by changing the size of the event window used. Panel A presents the results of the univariate test on the investors' reaction to the events associated with the operational separation on a 3-day window which are the main results of my thesis. Then it reports the results of using a 5-day event window and a 10-day window instead of a 3-day window. I find that my results are robust to using either a 5-day or a 10-day window for Event 5. However, for Event 2 the results are not robust in any of the alternative event windows. Event 2 presents contradictory results, yet I consider that the date of the Event 2 is close to the Coronavirus outbreak and the lockdowns, which might disrupt the results. Numbers on parentheses report the respective t-statistics.

Panel A: Univariate Analysis of Sample Partitioned by Firm's Auditor on different event window

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
Mean CAR (BIG4=1)	0.59	-0.19	-0.25	-0.58	-0.52	0.93
Mean CAR (BIG4=0)	1.43	-2.62	-0.07	-0.25	-0.41	-1.67
Difference (3-day window)	**-0.88**	**2.41*** **	**-0.23**	**-0.34**	**-0.10**	**2.60*** **
	(-1.46)	(3.77)	(-0.36)	(-0.60)	(-0.29)	(4.64)
Mean CAR (BIG4=1)	0.01	-6.81	0.01	-0.32	-0.34	1.85
Mean CAR (BIG4=0)	-0.12	-4.11	-0.05	-0.36	-0.23	-0.45
Difference (5-day window)	**0.13**	**-2.70*** **	**0.06**	**0.04**	**-0.12**	**2.30*** **
	(1.42)	(-2.36)	(1.29)	(0.72)	(-0.94)	(3.45)
Mean CAR (BIG4=1)	0.39	-12.90	0.46	0.20	0.24	1.36
Mean CAR (BIG4=0)	-0.40	-10.55	0.87	-0.35	-0.11	-0.47
Difference (10-day window)	**0.87**	**-2.42*** **	**-0.44**	**0.52**	**0.37**	**1.84*** **
	(1.62)	(-3.89)	(-0.82)	(0.96)	(1.00)	(3.15)

Notes: *p<0.1; **p<0.05; ***p<0.01

Table 6.2: Multivariate Regression - Robustness Test on Firm's Auditor Hypothesis

This table test the robustness of the results of the market reaction to the events related to the operational separation of the audit practices in reference to the Firm's Auditor hypothesis testing, by changing the size of the event window used. Panel A presents the results for the coefficient of interest of the multivariate test on the investors' reaction to the events associated with the operational separation on a 3-day,a 5-day and a 10-day event window. In addition to the coefficient of interest, I present the results of one of the control variables, namely the MVAL which represents the market value of a firms during the event window. I find that my results are robust to using either a 5-day or a 10-day window for Event 5 related to BIG4. However, for Event 2 the results are not robust in any of the alternative event windows. On the contrary, I find insignificant results on the coefficient of interest, whereas the market value of the firm becomes statistically significant at any significance level. This confirms my expectation from the univariate robustness test that the effect of the Coronavirus outbreak and the lockdowns, has disrupted the results, with markets reacting primarily negatively on large firms rather than firms audited by a Big 4 auditor. For this reason, I also deem the use of a larger event window in Event 2 inappropriate. Numbers on parentheses report the respective t-statistics.

Panel A: Multivariate Analysis in the Market Reaction and Firm's Auditor on Different Event Windows

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
BIG4	**-0.26**	**1.72****	**-0.10**	**-0.41**	**0.19**	**1.56****
(3-day)	(-0.30)	(2.03)	(-0.12)	(-0.57)	(0.19)	(2.21)
MVAL	-0.20	-0.04	0.20	0.20	0.16	-0.97***
(3-day)	(-0.81)	(-0.13)	(0.78)	(0.90)	(0.75)	(-4.28)
BIG4	**0.55**	**0.61**	**-0.48**	**-0.61**	**-0.11**	**1.72****
(5-day)	(0.64)	(0.62)	(-0.64)	(-0.80)	(-0.11)	(2.13)
MVAL	-0.01	**-1.50*****	0.24	0.63***	0.58***	-0.63**
(5-day)	(-0.03)	**(-5.89)**	(1.00)	(2.71)	(2.59)	(-2.49)
BIG4	**0.58**	**0.35**	**-0.40**	**-0.51**	**-0.12**	**1.77***
(10-day)	(0.79)	(0.44)	(-0.61)	(-0.73)	(-0.12)	(1.70)
MVAL	0.08	**-1.08*****	0.30	0.53**	0.48**	-0.56**
(10-day)	(0.37)	**(-4.67)**	(1.39)	(2.46)	(2.35)	(-2.46)
CONTROLS (excl. MVAL)	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
INDUSTRY F. E.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.

Notes: CAR is the cumulative abnormal returns of a firm during the 3-day event window, reported as a percentage. I proceed to calculate CAR through Equation (1).
BIG4, is the variable that distinguishes auditees of a Big 4 firm from those audited by a non-Big 4 auditor. The variable BIG4 equals 1, if a firm's auditor is a Big 4 firm, and 0 if otherwise.
MVAL represents the average market value of a firm during an event.
*p<0.1; **p<0.05; ***p<0.01

Table 6.2 reports the coefficient of interest (BIG4) and the results for market value (MVAL) and indicates that the results are robust to using either a 5-day or a 10-day window for Event 5. However, for Event 2, the results are not robust in any of the alternative event windows. On the contrary, I find insignificant results on the coefficient of interest, whereas the firm's market value becomes statistically significant at any significance level. These results are consistent with my expectation from the univariate robustness test that the effect of the Coronavirus outbreak and the

lockdowns has disrupted the results, with markets reacting primarily negatively on large firms rather than firms audited by a Big 4 auditor.

Table 6.3: Univariate Robustness Test on Financial Reporting Quality Hypothesis

This table test the robustness of the results of the market reaction to the events related to the operational separation of the audit practices in reference to the Financial Reporting Quality hypothesis testing, by changing the size of the event window used. Panel A presents the results of the univariate test on the investors' reaction to the events associated with the operational separation on a 3-day window which are the main results of my thesis. Then it reports the results of using a 5-day event window and a 10-day window instead of a 3-day window. I find that my results are robust to using either a 5-day or a 10-day window for Event 1, yet on a lower significance level. I observe that as I increase the size of the event window, the statistical significance of the results is reducing. The results are insignificant across all other events and window sizes.

Panel A: Univariate Test of Sample Partitioned by Magnitude of Scaled Absolute Discretionary Accruals on different event windows

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
Mean CAR (High ABSDA)	-0.02	-0.17	-0.70	-0.40	-0.36	1.27
Mean CAR (Low ABSDA)	0.80	-0.59	-0.42	-0.21	0.07	0.62
Difference (3-day window)	**-0.82****	**0.42**	**-0.28**	**-0.19**	**-0.43**	**0.65**
	(2.09)	(0.85)	(-0.58)	(0.42)	(0.58)	(0.99)
Mean CAR (High ABSDA)	0.07	0.36	-0.25	-2.10	-1.79	1.85
Mean CAR (Low ABSDA)	0.80	-1.39	0.35	-2.14	-0.90	0.99
Difference (5-day window)	**-0.73***	**1.74**	**-0.59**	**0.05**	**-1.19**	**0.86**
	(1.71)	(1.66)	(-0.95)	(0.07)	(-0.89)	(0.86)
Mean CAR (High ABSDA)	-0.51	0.38	-0.75	-1.69	-3.10	3.13
Mean CAR (Low ABSDA)	0.48	-2.15	-0.28	-2.29	-0.98	1.94
Difference (10-day window)	**-0.99***	**2.41***	**-0.48**	**0.60**	**-2.65**	**1.19**
	(1.68)	(1.71)	(-0.54)	(0.61)	(-1.47)	(0.97)

Notes: *p<0.1; **p<0.05; ***p<0.01

Tables 6.3 and 6.4 present the results of similar robustness checks, but for the Financial Reporting Quality hypothesis testing. Table 6.3 reports on whether the market reacted more positively or negatively to firms with high scaled absolute discretionary accruals (ABSDA). I find that the main results are robust to using either a 5-day or a 10-day window for Event 1, showing that firms with high scaled absolute discretionary accruals were on average associated with more negative Cumulative Abnormal Returns yet on a lower significance level. I also observe in the robustness check that as I increase the size of the event window, the statistical significance of the results is reducing. Furthermore, I find positive and statistically significant results for Event 2 by using a 10-day event window.

Finally, Table 6.4 reports the robustness checks for the additional test in which I split firms based on the sign of the scaled discretionary accruals. I find that the main results regarding the

positive scaled discretionary accruals on Event 1 are robust for the 5-day, but the significance decays as I move towards the 10-day window. However, I also observe significant results on the coefficient of interest during Event 3 for the positive scaled discretionary accruals, whereas the results in my 3-day window test were insignificant. Overall, there are mixed results over the robustness of my findings regarding the Financial Reporting Quality hypothesis.

Table 6.4: Multivariate Regression - Robustness Test on Financial Reporting Quality Hypothesis

This table reports the results of the additional test regarding the market reaction to the events related to the operational separation of the audit practices in reference to the Firm's Auditor hypothesis testing, by changing the size of the event window used, in which I split firms with positive and negative scaled discretionary accruals. Panel A presents the results for the coefficient of interest of the multivariate test on the investors' reaction to the events associated with the operational separation on a 3-day,a 5-day and a 10-day event window. I find that my results regarding the positive scaled discretionary accruals on Event 1 are robust for the 5-day, but the significance decays as I move towards the 10-day window. I also find significant results on the coefficient of interest during Event 3 for the positive scaled discretionary accruals, whereas the results in my main test were insignificant. Furthermore, I find statistically significant results for Event 5 by using negative scaled discretionary accruals on a 10-day event window. Overall, there are mixed results over the robustness of my main findings over the Financial Reporting Quality hypothesis.

Panel A: Multivariate Analysis in the Market Reaction and <u>Positive</u> Scaled Discretionary Accruals on Different Event Windows

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
ABSDA (3-day)	**-11.51**** (-2.00)	**3.33** (0.37)	**-8.41** (-0.93)	**-1.95** (-0.26)	**-21.17** (-1.40)	**3.44** (0.31)
ABSDA (5-day)	**-14.32*** (-1.68)	**7.40** (0.46)	**-3.69** (-0.34)	**7.32** (0.61)	**-6.45** (-0.29)	**1.63** (0.11)
ABSDA (10-day)	**-9.08** (-0.73)	**-19.74** (0.85)	**-33.14**** (-2.20)	**15.50** (0.92)	**16.32** (1.09)	**2.80** (0.15)

Panel B: Multivariate Analysis in the Market Reaction and <u>Negative</u> Scaled Discretionary Accruals on Different Event Windows

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
ABSDA (3-day)	**4.11** (0.71)	**6.87** (0.80)	**8.79** (1.15)	**1.02** (0.17)	**8.04** (0.55)	**2.26** (0.23)
ABSDA (5-day)	**-5.54** (-0.16)	**-40.96** (-0.61)	**-38.89** (-0.84)	**2.29** (0.05)	**-0.85** (-0.04)	**-4.76** (-0.07)
ABSDA (10-day)	**-35.71** (-0.73)	**-135.47** (-1.32)	**-43.08** (-0.68)	**2.36** (0.04)	**19.23** (1.19)	**-3.98** (-0.05)
CONTROLS	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
INDUSTRY F. E.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.

Notes: CAR is the cumulative abnormal returns of a firm during the 3-day event window, reported as a percentage. I proceed to calculate CAR through Equation (1).
ABSDA is the absolute value of the scaled discretionary accruals, i.e. the absolute value of the estimation of discretionary accruals as the residual of the Equation (3).
*p<0.1; **p<0.05; ***p<0.01

As mentioned in the methodology chapter, I also use a specific accruals measure, i.e., discretionary revenues, instead of scaled discretionary accruals as an alternative proxy to earnings management. I perform this additional test to investigate whether my results are robust and aiming at improving the validity of my inferences when estimating discretionary accruals as residuals of a regression model, as proposed by McNichols & Stubben (2018). As explained in Appendix B, I follow the residual method to estimate discretionary revenues proposed by Stubben (2010). Table 6.5 reports the summary of the results on the main variables of interest that would be present if replaced absolute scaled discretionary accruals with scaled absolute discretionary revenues[28]. I find that the

Table 6.5: Summary of Robustness Test Results – Discretionary Revenues

This table reports the results of the robustness test on the market reaction to the events related to the operational separation of the audit practices in reference to the Financial Reporting Quality hypothesis testing. Panel A presents the results of the univariate robustness test on the investors' reaction to the events associated with the operational separation of the audit, by partitioning the sample of firms into companies with high and companies with low level of scaled absolute discretionary revenues. I find negative and significant (at a two-tailed 10% significance level) difference in the average Cumulative Abnormal Returns of firms with high and firms with low absolute scaled discretionary revenues, consistent with the main results of my research, but on a lower significance level. Panel B reports the robustness test results for the cross-sectional analysis for three groups. The first is the one that includes all observations, the second includes firms with positive scaled discretionary revenues and the third includes firms with negative scaled discretionary revenues.
Refer to table 9.1 in Appendix for an extensive analysis on the results.

Panel A: Univariate Test of Sample Partitioned by Magnitude of Scaled Absolute Discretionary Revenues

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
Mean CAR (High ABSDR)	-0.12	-6.17	2.14	-0.34	0.33	1.86
Mean CAR (Low ABSDR)	0.74	-7.01	1.02	0.11	-0.01	2.33
Difference	**-0.87*** (-1.66)	**0.84** (0.85)	**1.11*** (1.86)	**-0.45** (-0.85)	**0.23** (0.34)	**-0.51** (-0.64)

Panel B: Cross Sectional Analysis in the Market Reaction and Absolute Discretionary Revenues

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
ABSDR (All firms)	**-23.79** (1.61)	**-36.02** (1.30)	**-1.36** (-0.07)	**3.18** (0.20)	**-50.51** (-1.07)	**-10.81** (-0.50)
ABSDR (Positive)	**-29.62*** (-1.71)	**-43.60** (-0.85)	**-32.85** (-1.14)	**-14.17** (-0.67)	**-149.27**** (-2.49)	**-19.96** (-0.89)
ABSDR (Negative)	**-18.29** (-1.18)	**-31.87** (-1.36)	**37.12** (1.57)	**10.63** (0.42)	**25.94** (0.32)	**-4.31** (-0.10)

Notes: CAR is the cumulative abnormal returns of a firm during the 3-day event window, reported as a percentage. I proceed to calculate CAR through Equation (1).
ABSDR is the absolute value of the scaled discretionary revenues, i.e., the absolute value of the estimation of discretionary revenues as the residual of the Equation (4) in Appendix B.
*p<0.1; **p<0.05; ***p<0.01

[28] Refer to Appendix B, Table 9.1 for the complete results of the robustness test.

results for all events and all samples are robust on both the univariate and the multivariate regression model, excluding the additional test performed on the Deloitte sample for firms with positive scaled discretionary revenues. In particular, the results are negative and significant (at a two-tailed 5% significance level). Therefore, I find negative and significant results for Event 1 for both the univariate regression model and the multivariate model in which I partition firms based on the sign of scaled discretionary revenues. The robustness tests suggest that the estimation of the accruals model does not produce biased coefficients, and subsequently, the inferences when using the discretionary accruals as a proxy for earnings management are valid.

7. Conclusion

In an effort to protect the reputation of the audit profession and revert the damage that the accounting scandals have caused to the trust in the audit profession over time, the FRC proceeded to enforce the operational separation of the audit division (FRC, 2020a). Conflicting opinions from scholars and experts have accompanied the announcement of the events around the Audit Arm Split, with those who treated the split negatively being judgemental about whether the split can indeed succeed where the previous regulatory frameworks partially failed (Shah, 2020, as cited in Menin, 2020; Ramanna, 2021). Therefore, my thesis aims to investigate whether investors perceive that the operational separation will improve the audit quality, thus leading to a higher level of financial reporting quality.

The FRC has instructed the Big 4 firms particularly to operationally separate their audit division from the remaining units, which implies that both the benefits and costs that might arise for Big 4 auditees ought to affect only firms audited by a Big 4 firm rather than all firms. Thus, I investigate the market reaction towards the announcement of the events associated with the Audit Arm Split, and I find that the markets reacted more positively to Big 4 auditees for two out of five events, whereas the market reaction to the remaining three events was insignificant. I also find that these results are consistent with the cross-sectional analysis. These results suggest that investors consider that the audit separation will indeed improve the audit independence of the Big 4 auditors, which will subsequently lead to an improved level of financial reporting quality.

Additionally, I investigate the market perception regarding firms with low financial reporting quality and whether the implementation of the operational separation will benefit these firms more. Around the first event that I study, I find that the markets reacted more negatively, in contrast to my expectations, indicating that firms with low scaled discretionary accruals were associated with more negative Cumulative Abnormal Returns. However, I attribute the adverse reaction to the concerns of the market on the scandals that have happened, based on which the audit split took effect.

Overall, through my thesis, I intend to contribute to the topic of the market perception over the operational separation of the audit division from the remaining units of the Big 4 firms. My research constitutes the first examination of the market's perception towards the announcement and the implementation of the Audit Arm Split. The significant results that I have yielded indicate that the market values the intentions of the standard setters to increase audit quality and audit independence. Therefore, any restrictions established to protect the audit profession are indeed achieving their goal to rebuild trust. Finally, this thesis can be considered the start towards investigating topics related to the Audit Arm Split, primarily after the finalization of the split, in 2024.

During my research, I came across two limitations. First, I had limited access to data regarding auditors. I managed to conduct my research by acquiring data concerning a firm's auditor and the annual audit fees that a firm pays. However, I had no access to data related to restatements or going-concern opinions. However, this can be considered an opportunity for future research, as

researchers can investigate the market reaction for several alternatives of financial reporting quality, such as the variables mentioned above. The second limitation I came across was the lack of prior literature associated with the operational separation, justified though by the recency of the split regulation. Therefore, I had to limit my literature review either to the settings and the results of research papers associated with the SOX Act, which had comparable implications, or to the opinions expressed by scholars and experts in newspapers.

8. References

Altman, E. I., Iwanicz-Drozdowska, M., Laitinen, E. K., & Suvas, A. (2017). Financial distress prediction in an international context: A review and empirical analysis of Altman's Z-score model. *Journal of International Financial Management & Accounting, 28*(2), 131-171.

Ayres, D. R., Neal, T. L., Reid, L. C., & Shipman, J. E. (2019). Auditing goodwill in the post-amortization era: challenges for auditors. *Contemporary Accounting Research*, *36*(1), 82–107.

Boone, J. P., Khurana, I. K., & Raman, K. K. (2012). Audit market concentration and auditor tolerance for earnings management *: audit market concentration and auditor tolerance for earnings management. *Contemporary Accounting Research, 29*(4), 1171–1203. https://doi.org/10.1111/j.1911-3846.2011.01144.x

Callaghan, J., Parkash, M., & Singhal, R. (2009). Going-concern audit opinions and the provision of nonaudit services: Implications for auditor independence of bankrupt firms. *Auditing: A Journal of Practice & Theory, 28*(2), 153-169.

Carcello, J. V., Neal, T. L., Reid, L. C., & Shipman, J. E. (2020). Auditor independence and fair value accounting: an examination of nonaudit fees and goodwill impairments. *Contemporary Accounting Research, 37*(1), 189–217. https://doi.org/10.1111/1911-3846.12514

Caylor, M. L. (2010). Strategic revenue recognition to achieve earnings benchmarks. *Journal of Accounting and Public Policy, 29*(1), 82-95.

Chen, H., Chen, J. Z., Lobo, G. J., & Wang, Y. (2011). Effects of audit quality on earnings management and cost of equity capital: evidence from china. *Contemporary Accounting Research, 28*(3), 892–892.

Chen, Q., Kelly, K., & Salterio, S. E. (2012). Do changes in audit actions and attitudes consistent with increased auditor scepticism deter aggressive earnings management? an experimental investigation. *Accounting, Organizations and Society*, 37(2), 95–95.

Chen, W., Hribar, P., & Melessa, S. (2018). Incorrect inferences when using residuals as dependent variables. *Journal of Accounting Research, 56*(3), 751-796.

Choi, S. H., Frye, M. B., & Yang, M. (2008a). Shareholder rights and the market reaction to sarbanes-oxley. *Quarterly Review of Economics and Finance*, *48*(4), 756–756.

Choi, J.-h, Kim, J.-b, Liu, X., & Simunic, D. A. (2008b). Audit pricing, legal liability regimes, and big 4 premiums: theory and cross-country evidence. *Contemporary Accounting Research, 25*(1), 55–100.

DeAngelo, L. E. (1981a). Auditor size and audit quality. *Journal of Accounting & Economics, 3*, 183- 199.

DeAngelo, L. E. (1981b). Auditor independence, "low balling," and disclosure regulation. *Journal of Accounting & Economics, 3*, 113-127.

Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review, 70*(2), 193–225.

DeFond, M. L., Raghunandan, K., & Subramanyam, K. R. (2002). Do non-audit service fees impair auditor independence? evidence from going concern audit opinions. *Journal of Accounting Research, 40*(4), 1247–1274.

DeFond, M., & Zhang, J. (2014). A review of archival auditing research. *Journal of Accounting & Economics*, *58*(2-3), 275–275. https://doi.org/10.1016/j.jacceco.2014.09.002

Deloitte UK. (2020, September 11). *Deloitte UK announces audit governance changes and new managing partner*. [Press Release]. Retrieved from https://www2.deloitte.com/uk/en/pages/press-releases/articles/deloitte-uk-announces-audit-governance-changes-and-new-managing-partner.html

Farmer, T. A., Rittenberg, L. E., & Trompeter, G. M. (1987). Investigation of the impact of economic and organizational factors on auditor independence. *Auditing*, *7*, 1.

Farrell, S. (2018, August 15). Watchdog berates PwC over 'misleading' BHS accounts. *The Guardian: International Edition.* https://www.theguardian.com/business/2018/aug/15/watchdog-berates-pwc-misleading-bhs-accounts

Fields, L. P., Fraser, D. R., & Wilkins, M. S. (2004). An investigation of the pricing of audit services for financial institutions. *Journal of Accounting and Public Policy*, *23*(1), 53–77.

Financial Reporting Council. (2020a, July 6). *FRC principles for operational separation of audit practices.* [Press Release] Retrieved from https://www.frc.org.uk/news/july-2020/frc-principles-for-operational-separation-of-a-(1)

Financial Reporting Council. (2020b, February 27). *FRC writes to audit firms on operational separation*. [Press Release] Retrieved from https://www.frc.org.uk/news/february-2020-(1)/frc-writes-to-audit-firms-on-operational-seperatio

Financial Reporting Council. (2021, February 23). *FRC principles for operational separation of audit practices*. [Press Release] Retrieved from https://www.frc.org.uk/news/february-2021/operational-separation-of-audit-practices

Financial Reporting Council. (2010, May 28). *The UK Corporate Governance Code*. [Press Release] Retrieved from https://www.frc.org.uk/getattachment/31631a7a-bc5c-4e7b-bc3a-972b7f17d5e2/UK-Corp-Gov-Code-June-2010.pdf

Gaynor, L. M., Kelton, A. S., Mercer, M., & Yohn, T. L. (2016). Understanding the relation between financial reporting quality and audit quality. *Auditing*, *35*(4), 1–1.

Hammersley, J. S., Myers, L. A., & Shakespeare, C. (2008). Market reactions to the disclosure of internal control weaknesses and to the characteristics of those weaknesses under section 302 of the Sarbanes Oxley Act of 2002. *Review of Accounting Studies*, *13*(1), 141-165.

Jain, P. K., & Rezaee, Z. (2006). The sarbanes-oxley act of 2002 and capital-market behavior: early evidence*. *Contemporary Accounting Research*, *23*(3), 629–654. https://doi.org/10.1506/2GWA-MBPJ-L35D-C4K6

Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of accounting research*, *29*(2), 193-228.

Kapoor, M., & Iacone, A. (2020, July 17). How U.K. Audit Scandals Pushed Big Four Toward Split. *Bloomberg.* https://www.bloomberg.com/news/articles/2020-07-17/how-u-k-audit-scandals-pushed-big-four-toward-split-quicktake

Kinder, T., & Jenkins, P. (2019, November 7). FRC chairman calls for break-up of Big Four accountants. *Financial Times*. https://www.ft.com/content/84d1b2c0-0077-11ea-b7bc-f3fa4e77dd47

Kluger, B. D., & Shields, D. (1989). Auditor changes, information quality and bankruptcy prediction. *Managerial and Decision Economics*, *10*(4), 275-282.

Kothari, S. P. (2001). Capital markets research in accounting. *Journal of Accounting and Economics*, *31*(1-3), 105-231.

Kothari, S. P., Leone, A. J., & Wasley, C. E. (2005). Performance matched discretionary accrual measures. *Journal of Accounting & Economics*, *39*(1), 163–197.

Krishnan, J., Sami, H., & Zhang, Y. (2005). Does the provision of nonaudit services affect investor perceptions of auditor independence? *Auditing: A Journal of Practice & Theory*, *24*(2), 111.

Krishnan, J., Rama, D., & Zhang, Y. (2008). Costs to comply with sox section 404. *Auditing*, *27*(1), 169–186.

Landell-Mills, N., & Peterson, J. (2018). Should the Big Four accountancy firms be split up? *Financial Times*. https://www.ft.com/content/663c433a-2c38-11e8-97ec-4bd3494d5f14

Larcker, D. F., Ormazabal, G., & Taylor, D. J. (2011). The market reaction to corporate governance regulation. *Journal of Financial Economics*, *101*(2), 431–431.

Lennox, C. S. (2016). Did the PCAOB's restrictions on auditors' tax services improve audit quality? *The Accounting Review*, *91*(5), 1493–1493.

Li, H., Pincus, M., & Rego, S. O. (2008). Market reaction to events surrounding the sarbanes-oxley act of 2002 and earnings management. *The Journal of Law & Economics*, *51*(1), 111–134.

Libby, R., & Frederick, D. M. (1990). Experience and the ability to explain audit findings. *Journal of Accounting Research*, *28*(2), 348–348.

Litvak, K. (2007). The effect of the sarbanes-oxley act on non-us companies cross-listed in the us. *Journal of Corporate Finance*, *13*(2-3), 195–228.

Menin, A. (2020). 'Utterly inadequate': Experts slam watchdog's Big Four audit split. *City A.M.* https://www.cityam.com/utterly-inadequate-audit-experts-slam-watchdogs-big-four-audit-split/

Mintz, S. M. (2020). Now Is the Time to Operationally Split Audit and Nonaudit Services. *The CPA Journal*, *90*(10/11), 56-62.

McNichols, M. F., & Stubben, S. R. (2018). Research Design Issues in Studies Using Discretionary Accruals. *Abacus*, *54*(2), 227-246.

Reynolds, J. K., & Francis, J. R. (2000). Does size matter? The influence of large clients on office-level auditor reporting decisions. *Journal of accounting and economics*, *30*(3), 375-400.

Palmrose, Z.-V., Richardson, V. J., & Scholz, S. (2004). Determinants of market reactions to restatement announcements. *Journal of Accounting & Economics*, *37*(1), 59–89. https://doi.org/10.1016/j.jacceco. 2003.06.003

Public Company Accounting Oversight Board (PCAOB). (2013). Audit Quality Indicators. Standing Advisory Group Meeting Discussion. Washington, DC: PCAOB.

Ramanna, K. (2021). UK audit reforms fail to address the real problem behind scandals. *Financial Times*. https://www.ft.com/content/58a64ea0-e500-4efb-8e61-07676b8609bc

Regulation (EU) No 537/2014 of the European Parliament and of the Council of 16 April 2014 on specific requirements regarding statutory audit of public-interest entities and repealing Commission Decision 2005/909/EC Text with EEA relevance

Sarbanes-Oxley Act of 2002 (SOX), 2002. Public Law 107–204. Government Printing Office, Washington, D.C

Stubben, S. R. (2010). Discretionary revenues as a measure of earnings management. *The Accounting Review, 85*(2), 695–717.

Zha Giedt, J. (2018). Modelling receivables and deferred revenues to detect revenue management. *Abacus, 54*(2), 181-209.

Zhang, I. X. (2007). Economic consequences of the sarbanes-oxley act of 2002*. *Journal of Accounting & Economics*, *44*(1/2), 74–74.

9. Appendix

Appendix A: Discretionary Revenues Model

I proceed to use discretionary revenues as an alternative proxy for the level of financial reporting quality. According to prior literature, discretionary revenues refer to the part of a firm's revenues that are at the discretion of the management to be manipulated (Stubber, 2010). The intuition behind the introduction of this proxy as an alternative to discretionary accruals is that literature considers that the revenues are the primary medium through which managers manage the firm's earnings (Stubben, 2010; McNichols & Stubben, 2018).

In line with the suggestions of Stubben (2010), I estimate the level of discretionary revenues as a residual of the change in accounts receivable (ΔARjt) minus the estimated changes in revenues. Yet, Stubben (2010) suggests that it is essential to distinguish between the changes in revenues during the first three quarters and the changes in revenues during the final quarter of the fiscal year. However, I proceed to make two adjustments to Stubben's suggested model, which aligns with the discretionary accruals model in Equation (2). First, I scale the changes with lagged total assets to account for the size of a firm. Then, I also include industry-fixed effects as a variable to avoid introducing bias into my estimations, as explained in the accruals model. In line with the accruals model, positive discretionary revenues are an indication of earnings management. This leads to the model in Equation (5), in which I estimate the discretionary revenues as the residual of the regression.

$$\frac{\Delta AR_{j,t}}{TA_{j,t-1}} = a_0 + a_1\left(\frac{\Delta R1\_3_{j,t}}{TA_{j,t-1}}\right) + a_2\left(\frac{\Delta R4_{j,t}}{TA_{j,t-1}}\right) + \sum_{k=1}^{9} a_{ki}\, INDUSTRY_{ik} + \varepsilon_{jt} \qquad (5)$$

Subscripts j and t refer to the firm and the year, respectively. The dependent variable of the model is firm j's changes in accounts receivables ($\Delta AR_{j,t}$) at year t, scaled by firm j's lagged total assets ($TA_{j,t-1}$). The variables $\Delta R1\_3_{j,t}$ and $\Delta R4_{j,t}$ refer to firm j's change in revenues during the first three quarters of the fiscal year and change in revenues during the final quarter of the fiscal year, respectively, both scaled by firms lagged total assets. After estimating the scaled discretionary accruals as the residual of the model, I perform the same tests as before regarding the Financial Reporting Quality hypothesis. For the examination of the hypothesis, I use Equation (4), but I replace *ABSDA*, i.e., the absolute scaled discretionary accruals, with the variable *ABSDR*, which is the absolute value of the estimated scaled discretionary revenues estimated above.

Appendix B: Robustness Test Results for Discretionary Revenues

Table 9.1: Robustness Test and Financial Reporting Quality – Discretionary Revenues

This table reports the results of the robustness test on the market reaction to the events related to the operational separation of the audit practices in reference to the Financial Reporting Quality hypothesis testing. Panel A presents the results of the univariate robustness test on the investors' reaction to the events associated with the operational separation of the audit, by partitioning the sample of firms into companies with high and companies with low level of scaled absolute discretionary revenues. I find negative and significant (at a two-tailed 10% significance level) difference in the average Cumulative Abnormal Returns of firms with high and firms with low level of absolute scaled discretionary revenues, consistent with the main results of my research, but on a lower significance level. Panel B reports the results of the multivariate cross-sectional test on the market reactions associated with the events of the Audit Arm Split in regard to the Financial Reporting Quality hypothesis testing, by replacing ABSDA with ABSDR. I find that after including industry-fixed effects and controlling for variables that are associated with the variable of interest (ABSDR) and/or might be correlated with the Cumulative Abnormal Returns, there is no significant reaction of the market in the level of scaled absolute revenues in any of the events examined, also consistent with the main results. However, I proceed to perform an additional test, resulting in Panel C, where I partition my sample of firm-observations to firms with positive scaled discretionary revenues and firms with negative scaled discretionary revenues. I find that the markets reacted negatively, with a 10% level of statistical significance, in the level of positive scaled discretionary revenues, which is in line with the results of both the results of Panel A and the results of my main test using discretionary accruals. However, I find negative and significant (at a two-tailed 5% significance level) results on the additional test performed for the sample on Deloitte auditees, which is not in line with the main findings.

In both Panel A and B, the numbers presented in parenthesis are the t-statistics of the respective coefficient. Events 1 through 5 refer to the events mapped in Table 2.1, whereas in the Event 4 Deloitte, I narrow down the sample of firms, from firms audited by a Big 4 auditor to firms audited exclusively by Deloitte and perform a comparison of the effect of the level of scaled discretionary revenues on the Cumulative Abnormal Returns.

Panel A: Univariate Test of Sample Partitioned by Magnitude of Scaled Absolute Discretionary Revenues

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
Mean CAR (High ABSDR)	-0.12	-6.17	2.14	-0.34	0.33	1.86
Mean CAR (Low ABSDR)	0.74	-7.01	1.02	0.11	-0.01	2.33
Difference	**-0.87***	**0.84**	**1.11***	**-0.45**	**0.23**	**-0.51**
	(-1.66)	(0.85)	(1.86)	(-0.85)	(0.34)	(-0.64)

Table continues on the next page

Table 9.1 (Continue)

Panel B: Cross Sectional Analysis in the Market Reaction and Absolute Discretionary Revenues

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
INTERCEPT	3.06	-16.63*	-0.89	-3.33	7.93	-3.28
	(-0.65)	(-1.81)	(-0.16)	(-0.67)	(1.00)	(-0.41)
ABSDR	**-23.79**	**-36.02**	**-1.36**	**3.18**	**-50.51**	**-10.81**
	(1.61)	(1.30)	(-0.07)	(0.20)	(-1.07)	(-0.50)
Control Variables						
MVAL	0.33	0.22	-0.00	0.26	-0.19	-0.01
	(1.61)	(0.52)	(-0.01)	(1.16)	(-0.50)	(-0.02)
BMRATIO	0.08	0.71***	-0.23**	-0.22**	-0.46***	0.15
	(0.57)	(3.00)	(-2.09)	(-2.27)	(-2.72)	(0.86)
BETA	0.08	-0.43	0.15	-0.30	-0.51	-0.25
	(-0.58)	(-0.27)	(0.15)	(-0.33)	(-0.37)	(-0.18)
LOSS	-0.47	-0.06	-0.21	-0.42	1.89	2.78**
	(-0.29)	(-0.04)	(-0.25)	(-0.55)	(1.59)	(2.81)
INDUSTRY F. E.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
Observations	300	272	249	256	54	165
R^2	0.057	0.11	0.045	0.070	0.261	0.186
Adjusted R^2	0.014	0.065	-0.008	0.020	0.021	0.116
F Statistic	1.333 (df = 13; 286)	2.443*** (df = 13; 258)	0.857 (df = 13; 235)	1.393 (df = 13; 242)	1.089 (df = 13; 40)	2.654*** (df = 13;151)

Notes: CAR is the cumulative abnormal returns of a firm during the 3-day event window, reported as a percentage. I proceed to calculate CAR through Equation (1).
ABSDR is the absolute value of the scaled discretionary revenues, i.e. the absolute value of the estimation of discretionary revenues as the residual of the Equation (5).
MVAL and BMRATIO represent the average market value of a firm during an event and the book-to-market ratio calculated as the book value on the most recent to each event annual report, divided by the market value during an event, respectively.
BETA accounts for a firm's systematic risk and is calculated based on the fiscal year 2018 data through the use of the CAPM model.
LOSS is an indicator variable that is equal to 1 if the income before extraordinary items of a firm on the most recent, to each event, annual report, is negative, and 0 if otherwise.
Events 1 through 5 refer to the events mapped in Table 2.1, whereas the Event 4 Deloitte, refers to the specific variance of the model in Equation (2) where I proceed to narrow down my sample from Big 4 auditees to Deloitte auditees.
*p<0.1; **p<0.05; ***p<0.01

Table 9.1 (Continue)

Panel C: Cross Sectional Analysis in the Market Reaction and Sign of Discretionary Revenues

	Dependent Variable : CAR											
	Firms with Positive Scaled Discretionary Accruals						Firms with Negative Scaled Discretionary Accruals					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
INTERCEPT	10.23*	-19.67	11.54	1.12	22.55*	3.46	4.98	-7.51	-10.47	-6.08	2.96	-1.31
		(-1.15)	(1.40)	(0.27)	(2.08)	(0.42)	(0.64)	(-0.96)	(-1.54)	(-0.82)	(0.22)	(-0.10)
ABSDR	**-29.62***	**-43.60**	**-32.85**	**-14.17**	**-149.27****	**-19.96**	**-18.29**	**-31.87**	**37.12**	**10.63**	**25.94**	**-4.31**
	(-1.71)	(-0.85)	(-1.14)	(-0.67)	(-2.49)	(-0.89)	(-1.18)	(-1.36)	(1.57)	(0.42)	(0.32)	(-0.10)
Control Variables												
MVAL	0.72**	0.01	-0.38	-0.02	-0.84	-0.08	-0.20	0.32	0.46	0.43	-0.04	0.01
	(2.34)	(0.01)	(-0.94)	(-0.08)	(-1.62)	(-0.20)	(-0.65)	(0.90)	(1.42)	(1.23)	(-0.06)	(0.02)
BMRATIO	0.05	1.07***	-0.45***	-0.25**	-1.17**	0.57**	0.40	-0.16	0.17	-0.23	-0.21	-0.15
	(0.29)	(2.98)	(-3.02)	(-2.22)	(-3.13)	(2.41)	(1.47)	(-0.54)	(0.95)	(-1.26)	(-0.74)	(-0.54)
BETA	-1.65	-0.34	0.74	-0.25	0.06	0.31	1.06	0.13	-0.41	0.18	2.32	-1.46
	(-1.45)	(-0.11)	(0.47)	(-0.21)	(0.03)	(0.19)	(0.96)	(0.10)	(-0.31)	(0.12)	(0.97)	(-0.63)
LOSS	0.58	-0.71	0.20	-0.06	3.67*	1.88	-1.44	-0.37	-1.22	-1.09	-0.12	3.75**
	(0.54)	(-0.30)	(0.17)	(-0.07)	(2.09)	(1.63)	(-1.44)	(-0.32)	(-0.99)	(-0.84)	(-0.06)	(2.16)
IND. FIXED EFFECTS	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
Observations	150	146	134	134	28	94	169	143	128	135	26	106
R^2	0.142	0.180	0.063	0.091	0.499	0.180	0.091	0.109	0.092	0.144	0.333	0.204
Adjusted R^2	0.073	0.113	-0.022	0.009	0.154	0.081	0.014	0.019	-0.012	0.052	-0.283	0.091
F Statistic	2.068** (df = 11; 138)	2.674*** (df = 11; 134)	0.742 (df = 11; 122)	1.107 (df = 11; 122)	1.447 (df = 11; 16)	1.817* (df = 10;83)	1.188 (df = 13; 155)	1.210 (df = 13; 129)	0.888 (df = 13; 114)	1.566 (df = 13; 121)	0.541 (df = 12; 13)	1.810* (df = 13; 92)

Notes: *p<0.1; **p<0.05; ***p<0.01

Appendix C: Ex-winsorization results for the Firm's Auditor hypothesis

Table 9.2: Firm's Auditor hypothesis testing – Ex-winsorization results

This table reports the results of the market reaction to the events related to the operational separation of the audit practices in reference to the Firm's Auditor hypothesis testing prior to the winsorization of the audit fees. Panel A reports the results of the multivariate cross-sectional test on the market reactions associated with the events of the Audit Arm Split in regard to the Firm's Auditor hypothesis testing. I find that there are no significant changes to my main results with the winsorization of the audit fees.

Panel A: Cross-Sectional Analysis in the Market Reaction and Firm's Auditor – Ex-winsorization results

	Dependent Variable : CAR					
Variable	**Event 1**	**Event 2**	**Event 3**	**Event 4**	**Event 4 Deloitte**	**Event 5**
INTERCEPT	5.47	-5.78	-0.76	1.81	2.74	-1.72
	(1.48)	(-1.43)	(-0.19)	(0.50)	(0.81)	(-0.49)
BIG4	**-0.25**	**1.73****	**-0.10**	**-0.40**	**0.21**	**1.60****
	(-0.29)	**(2.04)**	**(-0.13)**	**(-0.55)**	**(0.22)**	**(2.27)**
Control Variables						
AUDFEES	-0.06	0.32	-0.24	-0.44	-0.48*	1.53***
	(-0.18)	(0.94)	(-0.77)	(-1.58)	(-1.97)	(5.77)
MVAL	-0.19	-0.03	0.20	0.23	0.19	-0.97***
	(-0.76)	(-0.11)	(0.76)	(1.02)	(0.87)	(-4.28)
BMRATIO	0.04	-0.08	-0.20*	-0.23***	-0.23***	0.06
	(0.37)	(-0.62)	(-1.92)	(-2.90)	(-2.97)	(0.63)
ALTMAN	0.04	0.00	0.03*	0.06***	0.06***	-0.01
	(1.45)	(0.25)	(1.80)	(3.45)	(3.49)	(-0.44)
BETA	0.02	0.34	0.18	0.06	0.05	0.33
	(0.06)	(1.40)	(0.78)	(0.28)	(0.26)	(1.27)
LOSS	-0.25	-0.38	0.60	-1.00	-0.96	-1.63**
	(-0.29)	(-0.43)	(0.69)	(-1.28)	(-1.24)	(-2.34)
INDUSTRY F.E.	Incl.	Incl.	Incl.	Incl.	Incl.	Incl.
Observations	390	484	463	439	439	468
R^2	0.017	0.036	0.019	0.054	0.047	0.134
Adjusted R^2	-0.001	0.011	0.004	0.039	0.032	0.121
F Statistic	0.940 (df = 15; 376)	2.815*** (df = 15; 468)	1.244 (df = 15; 447)	3.522*** (df = 15; 423)	3.021*** (df = 15; 423)	10.151*** (df = 15; 452)

Notes: CAR is the cumulative abnormal returns of a firm during the 3-day event window, reported as a percentage. I proceed to calculate CAR through Equation (1).
BIG4, is the variable that distinguishes auditees of a Big 4 firm from those audited by a non-Big 4 auditor. The variable BIG4 equals 1, if a firm's auditor is a Big 4 firm, and 0 if otherwise.
AUDFEES is the natural logarithm of audit fees as reported on the most recent, to each event, annual report.
MVAL and BMRATIO represent the average market value of a firm during an event and the book-to-market ratio calculated as the book value on the most recent to each event annual report, divided by the market value during an event, respectively.
BETA accounts for a firm's systematic risk and is calculated based on the fiscal year 2018

data through the use of the CAPM model.
ALTMAN is the Altman's z-score, which is a proxy of financial distress of a firm during an event and is calculated according to the equation on footnote 18.
LOSS is an indicator variable that is equal to 1 if the income before extraordinary items of a firm on the most recent, to each event, annual report, is negative, and 0 if otherwise.
*p<0.1; **p<0.05; ***p<0.01