Empirical Studies on Auditor Independence and Audit Quality

TECHNISCHE UNIVERSITÄT DARMSTADT

Am Fachbereich Rechts- und Wirtschaftswissenschaften
der Technischen Universität Darmstadt

genehmigte

Dissertation

vorgelegt von

Nicolas Peter Pappert
geboren am 27. Juli 1990 in Hünfeld

zur Erlangung des akademischen Grades
Doctor rerum politicarum (Dr. rer. pol.)

Erstgutachter: Prof. Dr. Reiner Quick
Zweitgutachter: Prof. Dr. Dirk Schiereck

Darmstadt 2023

Nicolas Peter Pappert: *Empirical Studies on Auditor Independence and Audit Quality*
Darmstadt, Technische Universität Darmstadt

Jahr der Veröffentlichung der Dissertation auf TUprints: 2023
Tag der mündlichen Prüfung: 03.03.2023

Acknowledgements

First, I wish to thank my doctoral supervisor and mentor, Professor Dr. Reiner Quick. He enabled me to do my doctorate at his Institute of Accounting and Auditing (Fachgebiet Rechnungswesen, Controlling und Wirtschaftsprüfung). Moreover, he always supported me and was constantly available to provide extensive personal and professional expertise. I also thank him for encouraging me to attend various international conferences and present our research papers there.

Furthermore, I would like to thank Professor Dr. Dirk Schiereck, not only for being the second assessor, but also for his extremely useful feedback in the joint PhD research seminars with his Institute of Corporate Finance (Fachgebiet Unternehmensfinanzierung). I also want to thank my committee members, Professor Dr. Janine Wendt, Professor Dr. Peter Buxmann, and Professor Dr. Alexander Kock.

I furthermore acknowledge my co-authors, Christian, Luca, and Tobias, for the fruitful collaboration and constructive discussions that contributed to this dissertation. Thanks also to Dr. Brian Bloch for his comprehensive editing of the English. In addition, I would like to thank my current and former colleagues at the Institute of Accounting and Auditing: Anette, Christian S., Erika, Eva, Fereshta, Florian, Julian, Kevin, Marcel, René, Sanjar, and our student assistants.

Finally, I would like to thank my family, especially my parents, Edeltraud and Hubert, who always supported my (academic) journey. To them, I dedicate this dissertation.

Abstract

The key function of the statutory audit is to enhance the credibility of financial information by giving an opinion on whether the financial statements of an audited company convey a true and fair view in accordance with the generally accepted accounting principles. In order to fulfill this function, appropriate audit quality is necessary. Audit quality is determined by the probability that the auditor will detect material misstatements in the client's annual financial statements (i.e., competence) and report on them (i.e., independence). Consequently, high-quality audits secure trust and market confidence, contribute to investor protection and reduce companies' cost of capital. However, auditing is a credence good, meaning that essential elements of the underlying services are not observable to the addressees of audited financial statements. Therefore, it is not sufficient that the auditor provides a high factual audit quality; it must also be perceived as high by the users of audited financial statements.

Accounting scandals, such as the recent ones involving Wirecard in Germany or Carillion in the United Kingdom, lead to a loss of confidence in the statutory audit. Consequently, regulatory interventions are undertaken, such as under Regulation (EU) No. 537/2014 in the EU or the Financial Market Integrity Strengthening Act of 2021 in Germany. Although numerous measures have already been implemented, such as mandatory audit firm rotation, banning the provision of certain non-audit services (NAS), or extending the auditor's report, the latest precedents once again demonstrate the need for further reforms. Moreover, many of the measures discussed and already implemented lack empirical evidence of their impact.

Against this background, this dissertation identifies, on the one hand, further potential and innovative instruments, and examines their suitability for strengthening auditor independence and increasing audit quality. On the other hand, the effects of already implemented measures are examined. The findings are set out in five empirical studies, summarized in eight articles.

The first study is a survey of auditors, non-professional investors, and bankers, on potential measures for fostering statutory auditor independence for audits of public interest entities (PIEs) and non-PIEs. Survey participants were asked to assess the

suitability of different instruments for strengthening auditor independence. The results are published in four articles and reveal that auditors are particularly in favor of establishing audit committees, improvements in professional supervision, and stricter sanctions for violating the principle of independence. Non-professional investors and bankers also advocate the latter two categories. In addition, both groups are also in favor of increased auditor liability. Concerning the differences in the perceptions of measures for PIE and non-PIE audits, the patterns are similar for all three subject groups.

On an experimental basis, the second study examines how non-professional investors and bankers evaluate potential instruments for increasing audit quality perceptions. These are a non-provision of NAS (either by pure audit firms, or a non-provision of NAS to audit clients) and a statutory fee schedule for audit services. The results indicate that the non-provision of NAS and a statutory fee schedule for audit services significantly positively affect participant audit quality perceptions. This finding is also revealed for perceived auditor independence, although no effect on the participants' perceived competence can be determined. Furthermore, the results indicate that a complete non-provision of NAS (both for audit and non-audit clients; pure audit firms) seems unnecessary.

The third study addresses whether the mandatory audit firm rotation of PIEs introduced by Regulation (EU) No. 537/2014 affects the audit quality of engagements in the first year, during the transition period from a voluntary to a mandatory audit firm rotation system. The results, based on a regression analysis of German listed companies, illustrate that anticipated rotations in the transition period between 2014 (enactment of the regulation) and 2020 (start of mandatory rotations for non-financial companies) lead to higher factual audit quality, but only for companies that are not listed in the CDAX. These findings are crucial for assessing the effects of the regulation, both before the actual application and for pending analyses during the application period that is now beginning.

Whether there are similarities and "boilerplates" in the disclosure of key audit matters (KAMs) in the auditor's reports of German DAX 30 companies is the subject of the fourth study. The auditor's report was fundamentally revised and expanded with the EU audit

market reform in 2014. The primary objective of the reform was to increase the quality of the statutory audit. Therefore, the information content of the auditor's report, and thus audit transparency was increased. The results show that although auditor's reports are more client-specific, similar wording is often used. Exceptionally high text similarities are found for KAMs on the same issue, reported by the same auditor on a client level. For some KAMs, there is even 100% text similarity. For different clients of the same auditor, the similarity rate decreases significantly, although high levels of similarity can be found in some cases. The similarity rate is lowest when there is an auditor change. Therefore, it is questionable whether this reporting practice really improves the informational value of the auditor's report and, accordingly, addressee perceptions of audit quality.

The fifth and final study builds on the findings of the fourth study. It examines the KAM sections in the auditor's reports of German HDAX companies between 2017 and 2019, focusing on text similarities for KAMs on the same issue reported in consecutive periods by the same or a different auditor at a client level. Furthermore, potential determinants of resulting text similarities are investigated using a regression analysis. In terms of text similarity, it is found that auditors often use similar wording when disclosing a KAM on the same issue at the client level in consecutive years. These results confirm the findings of the fourth study. Furthermore, the similarity rate is found to be significantly negatively correlated with a change of audit firm, and positively correlated to companies that have a stable financial position measured by a high portion of equity. Again, whether this reporting practice is appropriate for increasing information value and audit quality perceptions of relevant addressees is questionable.

Zusammenfassung

Aufgabe der gesetzlichen Abschlussprüfung ist es, die Glaubwürdigkeit von Rechnungslegungsinformationen zu stärken, indem ein Urteil darüber abgegeben wird, ob der Jahresabschluss und der Lagebericht eines geprüften Unternehmens im Einklang mit den jeweils maßgebenden Rechnungslegungsgrundsätzen ein den tatsächlichen Verhältnissen entsprechendes Bild der Vermögens-, Finanz- und Ertragslage vermitteln. Um diese Aufgabe zu erfüllen, ist eine angemessene Prüfungsqualität erforderlich. Die Prüfungsqualität wird durch die Wahrscheinlichkeit determiniert, dass der Prüfer wesentliche Falschangaben im Jahresabschluss des Mandanten entdeckt (Kompetenz) und darüber berichtet (Unabhängigkeit). Abschlussprüfungen von hoher Qualität sichern das Vertrauen des Marktes, tragen zum Anlegerschutz bei und senken die Kapitalkosten der Unternehmen. Jedoch ist die Abschlussprüfung ein Vertrauensgut, was bedeutet, dass wesentliche Elemente der Abschlussprüfungsleistungen für die Adressaten der geprüften Abschlüsse nicht beobachtbar sind. Daher reicht es nicht aus, dass der Prüfer tatsächlich eine hohe Prüfungsqualität erbringt; sie muss vielmehr auch von den Adressaten als hoch wahrgenommen werden.

Bilanzskandale, wie jüngst bei Wirecard in Deutschland oder Carillion im Vereinigten Königreich, führen dazu, dass das Vertrauen in die gesetzliche Jahresabschlussprüfung verloren geht. Als Konsequenz kommt es zu regulatorischen Eingriffen wie etwa im Rahmen der EU-Abschlussprüferverordnung aus dem Jahr 2014 oder dem Finanzmarktintegritätsstärkungsgesetz aus dem Jahr 2021. Obgleich bereits zahlreiche Schritte eingeleitet wurden (wie etwa die verpflichtende Rotation der Prüfungsgesellschaft, das Verbot für die Erbringung von bestimmten Nichtprüfungsleistungen (Non-Audit Services, NAS) oder die Erweiterung des Bestätigungsvermerks), zeigen die jüngsten Präzedenzfälle abermals die Notwendigkeit weiterer Reformen. Zudem fehlen für viele der diskutierten und bereits umgesetzten Instrumente empirische Nachweise ihrer Wirkung.

Vor diesem Hintergrund zeigt diese Dissertation auf der einen Seite weitere potenzielle und innovative Maßnahmen auf und untersucht deren Eignung zur Stärkung der Unabhängigkeit des Abschlussprüfers und Erhöhung der Prüfungsqualität. Auf der anderen Seite werden die Auswirkungen bereits implementierter Maßnahmen

untersucht. Die Erkenntnisse sind in fünf empirischen Studien, die wiederum in acht Artikeln zusammengefasst sind, niedergeschrieben.

Die erste Studie ist eine Befragung von Wirtschaftsprüfern, Privatinvestoren und Bankern zu potenziellen Instrumenten zur Stärkung der Unabhängigkeit des gesetzlichen Abschlussprüfers, sowohl bei Unternehmen des öffentlichen Interesses (Public Interest Entities, PIEs) als auch bei Unternehmen, welche kein PIE sind. Die Untersuchungsteilnehmer wurden gebeten, die Eignung unterschiedlicher Maßnahmen in Bezug auf die Stärkung der Unabhängigkeit des Abschlussprüfers einzuschätzen. Die Ergebnisse sind in vier Artikeln veröffentlicht. Es zeigt sich, dass Wirtschaftsprüfer vor allem die Einrichtung von Prüfungsausschüssen, Verbesserungen in der Berufsaufsicht sowie strengere Sanktionen bei Verletzungen des Unabhängigkeitsgrundsatzes befürworten. Letztere Kategorien werden auch von Privatinvestoren und Bankern als besonders unabhängigkeitsstärkend eingeschätzt. Zusätzlich befürworten die beiden Teilnehmergruppen eine höhere Haftung des Abschlussprüfers. Was die Unterschiede in der Wahrnehmung der Maßnahmen bei PIE- und Nicht-PIE-Prüfungen betrifft, so sind die Muster für alle drei Teilnehmergruppen ähnlich.

Auf Basis eines Experiments untersucht die zweite Studie, wie Privatinvestoren und Banker Maßnahmen im Hinblick auf die wahrgenommen Prüfungsqualität einschätzen. Hierbei handelt es sich um die Nichterbringung von NAS (in Form von reinen Prüfungsgesellschaften bzw. der Nichterbringung von NAS bei Prüfungsmandanten) sowie eine gesetzliche Gebührenordnung für Abschlussprüfungsleistungen. Die Ergebnisse deuten darauf hin, dass sich eine Nichterbringung von NAS sowie eine gesetzliche Gebührenordnung für Abschlussprüfungsleistungen signifikant positiv auf die von den Probanden wahrgenommene Prüfungsqualität auswirken. Dies lässt sich auch für die wahrgenommene Unabhängigkeit des Prüfers konstatieren, wenngleich kein Effekt auf die wahrgenommene Kompetenz seitens der Teilnehmer feststellbar ist. Darüber hinaus zeigt sich, dass ein kompletter Verzicht auf die Erbringung von NAS (sowohl für Prüfungsmandanten als auch Nicht-Prüfungsmandanten; ergo reine Prüfungsgesellschaften) nicht erforderlich scheint.

Die dritte Studie beschäftigt sich mit der Frage, ob die von der EU-Abschlussprüferverordnung des Jahres 2014 eingeführte Pflichtrotation der

Abschlussprüfungsgesellschaft von PIEs die tatsächliche Prüfungsqualität von Erstprüfungen im Übergangszeitraum von einem freiwilligen zu einem obligatorischen Rotationssystem beeinflusst. Die Ergebnisse auf Basis einer Regressionsanalyse deutscher börsennotierter Unternehmen veranschaulichen, dass antizipierte Rotationen in der Übergangsperiode zwischen 2014 (Erlass der Verordnung) und 2020 (Beginn der Pflichtrotationen für Nicht-Finanzunternehmen) zu einer höheren tatsächlichen Prüfungsqualität führen, allerdings nur für Unternehmen, die nicht im CDAX gelistet sind. Diese Erkenntnisse sind entscheidend für die Beurteilung der Effekte der Verordnung, sowohl vor der eigentlichen Anwendung als auch für noch ausstehende Analysen während der nun beginnenden Anwendungsperiode.

Ob es Ähnlichkeiten und „Boilerplates“ in der Berichterstattung über Key Audit Matters (KAMs) in den Bestätigungsvermerken der DAX-30-Unternehmen gibt, ist Gegenstand der vierten Studie. Der Vermerk wurde im Zuge der EU-Abschlussprüferverordnung grundlegend überarbeitet und erweitert, mit der Intention, die Qualität der Abschlussprüfung zu verbessern. Deshalb wurde der Informationsgehalt des Bestätigungsvermerks erhöht, um mehr Transparenz über die Abschlussprüfung zu schaffen. Aus den Ergebnissen geht hervor, dass, obgleich unternehmensindividuell berichtet wird, oftmals ähnliche Formulierungen verwendet werden. Dabei zeigen sich besonders hohe Textähnlichkeiten bei aufeinanderfolgenden Vermerken derselben Abschlussprüfer bei demselben Unternehmen und denselben Key Audit Matter Schwerpunkten. Einige KAMs weisen sogar eine 100%ige Übereinstimmung auf. Werden stattdessen unterschiedliche Unternehmen mit dem gleichen Abschlussprüfer betrachtet, nimmt die Übereinstimmungsrate deutlich ab, wenngleich sich vereinzelt auch hier hohe Übereinstimmungen finden lassen. Die Übereinstimmung ist am geringsten, sofern der Abschlussprüfer wechselt. Es ist daher fraglich, ob sich mit dieser Berichtspraktik der Informationswert des Bestätigungsvermerks und schließlich die Wahrnehmung der Adressaten in Bezug auf die Prüfungsqualität verbessert.

Die fünfte und letzte Studie setzt auf den Erkenntnissen der vierten Studie auf. Untersucht wurden die KAM-Abschnitte in den Bestätigungsvermerken der Unternehmen im HDAX zwischen 2017 und 2019. Der Fokus liegt auf Textähnlichkeiten bei KAMs desselben Themas, welche in aufeinanderfolgenden Perioden von demselben bzw. einem anderen Abschlussprüfer bei demselben Unternehmen berichtet werden.

Darüber hinaus wurden potenzielle Determinanten hieraus resultierender Textähnlichkeiten auf Basis einer Regressionsanalyse untersucht. Im Hinblick auf die Ähnlichkeit der KAMs zeigt sich, dass Prüfer häufig ähnliche Formulierungen verwenden, wenn sie in aufeinanderfolgenden Jahren ein KAM zum selben Thema auf Mandantenebene offenlegen. Die Ergebnisse der vierten Studie werden damit bestätigt. Weiterhin zeigt sich, dass die Ähnlichkeitsquote signifikant negativ mit einem Wechsel der Prüfungsgesellschaft und positiv mit Mandatsunternehmen korreliert ist, die eine stabile Finanzlage (gemessen an einer hohen Eigenkapitalquote) aufweisen. Auch hier stellt sich die Frage, ob das Berichtsverhalten angemessen ist, um die Wahrnehmung von relevanten Adressaten zu Informationswert und Prüfungsqualität zu steigern.

Content Overview

Table of Contents

List of Abbreviations

ANOVA	Analysis of variance
BaFin	Bundesanstalt für Finanzdienstleistungsaufsicht (Federal Financial Supervisory Authority)
DAX	Deutscher Aktienindex (German stock index that tracks the performance of the 40 largest and highest-turnover German stocks by market capitalization on the regulated market of the Frankfurt Stock Exchange)
DRS	Deutsche Rechnungslegungsstandards (German Accounting Standards)
e.g.	Exempli gratia (for example)
e.V.	Eingetragener Verein (registered association)
EBIT	Earnings before interest and taxes
EC	European Commission
EEC	European Economic Community
EPS	Earnings per share
et al.	Et alii (and others)
EU	European Union
FISG	Gesetz zur Stärkung der Finanzmarktintegrität (Financial Market Integrity Strengthening Act)
FRC	Financial Reporting Council
FTSE	Financial Times Stock Exchange Index
GAAP	Generally Accepted Accounting Principles
H	Hypothesis
HDAX	German stock index that reflects the price development of all shares in the DAX, MDAX and TecDAX
HGB	Handelsgesetzbuch (German Commercial Code)
i.e.	Id est (that is)
IAASB	International Auditing and Assurance Standards Board

IDW	Institut der Wirtschaftsprüfer (Institute of Public Auditors)
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standards
IPO	Initial public offering
ISA	International Standards on Auditing
KAM	Key audit matter
KWG	Kreditwesengesetz (German Banking Act)
MDAX	Mid-Cap-DAX (German stock index that tracks the performance of the 50 largest companies following the DAX stocks on the regulated market of the Frankfurt Stock Exchange)
N	Number of observations
NAS	Non-audit services
OLS	Ordinary least squares
PCAOB	Public Company Accounting Oversight Board
PhD	Doctor of Philosophy
PIE	Public interest entity
RQ	Research question
SD	Standard deviation
SOX	Sarbanes-Oxley Act
TecDAX	German stock index that tracks the performance of the 30 largest companies from the technology sector following the DAX stocks on the regulated market of the Frankfurt Stock Exchange
UK	United Kingdom
US	United States
VIF	Variance inflation factor
vs.	Versus

List of Figures

List of Tables

Chapter 1: Introduction

1.1 Motivation and Overall Research Question

Auditors provide an opinion on financial reports prepared by the management of a company, a task that is critical for investor confidence in financial statements, contributes to capital market stability, and leads to a reduction of companies' cost of capital (Newman *et al.*, 2005; European Commission, 2010). However, auditing is a credence good, meaning that essential elements of the underlying services are not observable to the addressees of audited financial statements. Therefore, the audit function can only be fulfilled if adequate audit quality is both provided and perceived by the relevant addressees (Causholli and Knechel, 2012).

Audit quality is defined as the probability that the auditor will detect material misstatements in the client's annual financial statements (i.e., auditor competence) and report on them (i.e., auditor independence) (DeAngelo, 1981b). Especially auditor independence is a fundamental cornerstone of the audit profession (Mautz and Sharaf, 1993), and is an essential prerequisite for trust in the auditor's opinion. Therefore, the principle of independence and related protective measures are anchored in the audit profession's national and international codes of ethics and professional principles. Furthermore, auditor independence is prescribed by law and by auditing standards (Quick, 2020).

Decades of academic and regulatory debate have resulted in ongoing changes to audit regulation in order to improve factual and perceived audit quality as well as auditor independence. Examples over the last few decades include the Sarbanes-Oxley Act (SOX) in the United States (US), Directive 2006/43/EC, Directive 2014/56/EU, and Regulation (EU) No. 537/2014 in the European Union (EU). In the EU, the reforms include several measures, such as mandatory audit firm and partner rotation, an extension of the auditor's report (including the reporting of key audit matters, KAM), a ban of certain non-audit services (NAS), or a fee cap on NAS which limits the amount of NAS the auditor can provide (European Commission, 2016).

However, despite these extensive audit market reforms, there is still an ongoing discussion among audit researchers, regulators, the public, and the auditing profession,

as to whether these measures are sufficient. Recent accounting scandals and auditor failures have fueled the debates. Examples include Carillion and British Home Stores in the United Kingdom (UK) or Wirecard and Greensill Bank in Germany. These scandals have already led to further regulatory reforms. For example, regulators in the UK and Germany have further restricted the provision of NAS. The British Financial Reporting Council (FRC) ordered the Big 4 audit firms to break up their operational business into an audit and a consulting unit by June 2024 (Financial Reporting Council, 2020). The British government is also considering an application of operational split to other statutory auditors (UK Government Department for Business, Energy and Industrial Strategy, 2021). With the implementation of the Financial Market Integrity Strengthening Act (Gesetz zur Stärkung der Finanzmarktintegrität, FISG), the German legislator has decided to further restrict the provision of specific tax consulting and valuation services to audit clients. Moreover, the FISG extends auditor civil liability, shortens the audit partners' rotation cycle, and eliminates out the extension options regarding the mandatory audit firm rotation (FISG, 2021). There are also examples of audit firms that have already started their own initiations, predominately in the area of NAS provision. For example, KPMG UK's initiative to no longer perform consultancy work for its FTSE 350 audit clients (Jolly, 2018) or EY's current plan to split its audit and advisory operations worldwide (O'Dwyer, 2022).

However, these discussions and decisions on (regulatory) measures to strengthen auditor independence and increase audit quality are often not accompanied by empirical evidence of the potential effects of these measures. As Francis (2011) points out, "regulators routinely mandate new requirements with no clear evidence of the need for such requirements or a careful evaluation of the potential consequences (cost and benefits) of policy proposals. In some cases, policy decisions are made even when known research findings do not support the need for regulatory actions." Therefore, this dissertation empirically addresses the appropriateness and usefulness of some (potential) measures, which results in the following overarching research question (RQ):

RQ: *What is the effect of potential and already implemented measures to strengthen auditor independence and increase audit quality?*

This dissertation thereby provides new findings that contribute to both society as a whole and to audit research. First, based on a survey of auditors, non-professional investors, and bankers, potential measures are evaluated concerning their suitability for improving the independence of auditors performing audits of public interest entities (PIEs)[1] and non-PIEs. Second, the suitability of measures that have not yet been implemented, for enhancing audit quality is examined on an experimental basis. Third, the effects of already implemented measures on audit quality are investigated using archival data. Accordingly, the findings of this dissertation are of interest to regulators, auditors, companies, addressees of audited financial statements, and other stakeholders. For them, the results should constitute a decision-making aid and be helpful in evaluating future (regulatory) measures.

In the following two sections, I highlight the theoretical foundations of this dissertation (section 1.2) and describe, how the eight included research papers contribute to answering the overall research question (section 1.3).

1.2 Theoretical Foundations

As already mentioned, the audit can only fulfill its function if it is performed with the appropriate audit quality. However, despite its great importance for the audit profession and its stakeholders, the term audit quality is neither defined by legal norms nor by the auditing standards of the profession (e.g., nationally by the Institute of Public Auditors in Germany (Institut der Wirtschaftsprüfer, IDW), or internationally by the International Auditing and Assurance Standards Board (IAASB)). There is also no clear definition of the term in the literature, which is why a widely varying understanding of the term has developed (Knechel *et al.*, 2013).[2]

The more practically oriented literature links audit quality primarily to the degree of compliance with accounting standards during the audit. In this context, compliance with professional duties, auditing, and accounting standards is a prerequisite for high

[1] Article 2 of Directive 2013/34/EU defines PIEs as "undertakings governed by the law of a member state and whose transferable securities are admitted to trading on a regulated market of any EU member state (…), credit institutions (…), insurance undertakings (…), and undertakings designated by member states as public-interest entities (…)."

[2] For an overview of different views and frameworks on audit quality, see Watkins *et al.* (2004); Francis (2011); Knechel *et al.* (2013); DeFond and Zhang (2014); IAASB (2014).

audit quality (Watkins *et al.*, 2004; Knechel *et al.*, 2013). Academic research focuses on key determinants and forms of audit quality, such as audit risk, the auditor's ability to improve the accuracy and informative value of the financial statements, or the accuracy of the audit opinion, whereby the definition by DeAngelo (1981b) is most frequently used in empirical research (Watkins *et al.*, 2004). She defines audit quality as the market-assessed joint probability that a given auditor will discover a breach in the client's accounting system (i.e., perceived auditor competence) and report the breach (i.e., perceived auditor independence). Besides this classic definition, which refers to user beliefs (i.e., auditor's reputation), audit quality has a real dimension (i.e., factual competence and independence; see Figure 1) (Watkins *et al.*, 2004).

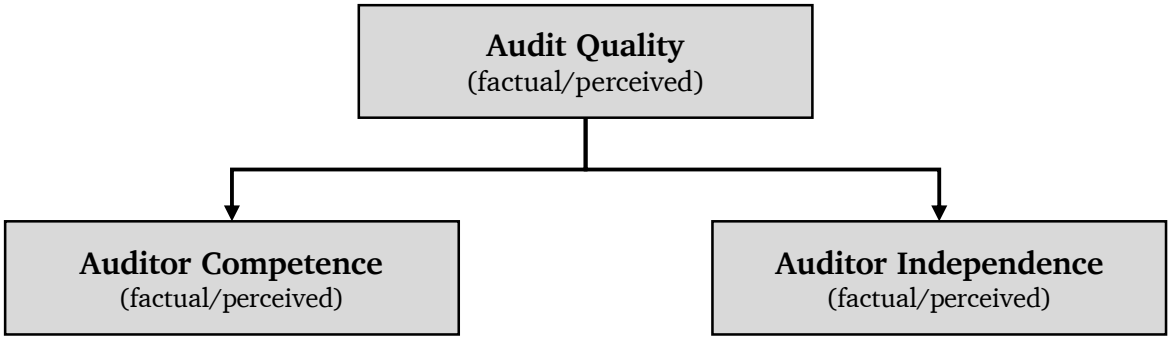


Figure 1: Definition of audit quality

Moreover, DeFond and Zhang (2014) define audit quality as "greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics." Therefore, they do not see auditing as a mere binary process of detecting and reporting "black and white" Generally Accepted Accounting Principles (GAAP) violations. Similarly, Francis (2011) defines audit quality as a continuum from low- to high-quality audits, which is affected by several factors (e.g., audit tests, engagement team personnel, and institutions affecting auditing). In addition, Knechel *et al.* (2013) identify further indicators of audit quality in their framework: inputs (e.g., professional skepticism, knowledge and expertise), process (e.g., judgment, audit production), outcomes (e.g., financial reporting quality, audit reports), and context (e.g., auditor tenure, market perceptions of audit quality). Figure 2 illustrates their framework of audit quality indicators, whereby the links across the phases indicate that an improvement in one indicator area can result in improvements in other indicator areas. For example, improvements in the

audit process (e.g., more training activities to improve the audit production and enhance the overall process) would impact positively on the outcome (Knechel *et al.*, 2013).

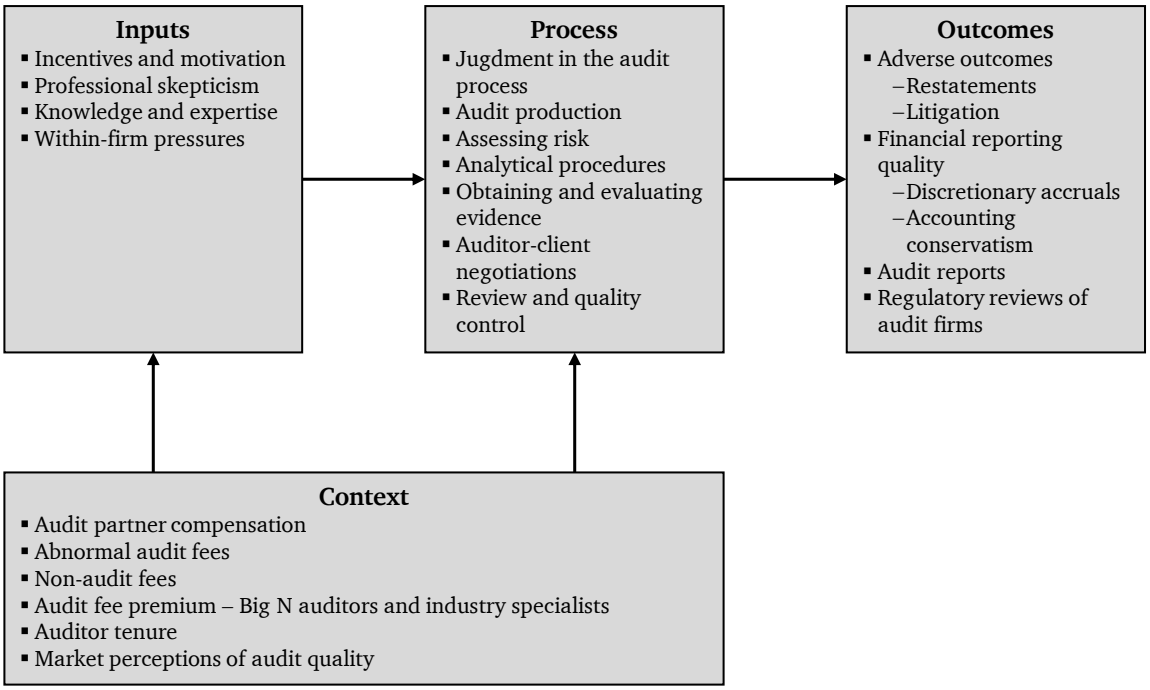


Figure 2: Audit quality indicators (Knechel *et al.*, 2013)

Finally, and referring to the audit quality framework of the IAASB, "audit quality encompasses the key elements that create an environment that maximizes the likelihood that quality audits are performed on a consistent basis". The framework consists of inputs, processes, outputs, key interactions within the financial reporting supply chain, and contextual factors (IAASB, 2014). However, especially the perception of audit quality depends on individual stakeholder views. For instance, users, auditors, regulators, and the society might have different views on what constitutes audit quality (Knechel *et al.*, 2013). Taken together, Knechel *et al.* (2013) sum up aptly that "the evaluation of audit quality is a multi-dimensional challenge from both a theoretical and practical perspective." For this dissertation, I basically follow the definition from DeAngelo (1981b), with its components of auditor independence and auditor competence. However, the analyzed measures in the different research papers of this dissertation are also reflected in the different indicator areas defined by Knechel *et al.* (2013).

Since audit quality is not directly observable to the addressees of audited financial statements and is difficult to measure, empirical audit research, in particular, uses various surrogates to measure audit quality, which establish a link to the quality characteristics of the audit. DeFond and Zhang (2014) distinguish between output-based measures and input-based measures. Output-based variables include, e.g., restatements, going-concern opinions, earnings management, or perception variables such as capital market reactions or changes in the cost of capital. Input-based variables are reflected in auditor characteristics, such as size (e.g., Big 4) or industry specialization, as well as in the level of audit fees or their change (DeFond and Zhang, 2014). Depending on their advantages and disadvantages as well as the varying degrees of suitability for measuring audit quality, these surrogates are used differently, depending on the research framework. In recent years, however, there has been a trend in audit research toward the increased use of output-based surrogates and combinations of different measures (Simnett *et al.*, 2016).

Regarding auditor independence, the International Federation of Accountants (IFAC) distinguishes between independence of mind (i.e., in fact) and independence in appearance (IFAC, 2021). The former is defined as "the state of mind that permits the expression of a conclusion without being affected by influences that compromise professional judgment, thereby allowing an individual to act with integrity and exercise objectivity and professional skepticism" (IFAC, 2021, Section 400.5 (a)). Independence in appearance is defined as "the avoidance of facts and circumstances that are so significant that a reasonable and informed third party would be likely to conclude that a firm's, or an audit team member's, integrity, objectivity or professional skepticism has been compromised" (IFAC, 2021, Section 400.5 (b)). The IFAC further defines five situations in which auditor independence is threatened:

- Self-interest threat: a situation in which the auditor's judgments will be influenced by a financial or other interest (i.e., an economic bond) (IFAC, 2021, Section 120.6 A3 (a)). Such a situation could occur in the case of a simultaneous provision of audit services and NAS, abnormally high audit fees, or lowballing.
- Self-review threat: a situation in which the auditor may overlook or conceal misstatements that result from previous judgments or an activity performed (e.g.,

consulting services) through the auditor or the audit firm (IFAC, 2021, Section 120.6 A3 (b)).

- Advocacy threat: a situation in which the client is promoted by the auditor and s/he identifies itself with the interests of the client and does not maintain the necessary objective distance (IFAC, 2021, Section 120.6 A3 (c)).
- Familiarity threat: a situation in which the auditor will be too close to the interests and work of the client, e.g., due to a long or close auditor-client relationship (IFAC, 2021, Section 120.6 A3 (d)).
- Intimidation threat: a situation in which the auditor will be deterred from being objective (e.g., because of actual or perceived pressure) (IFAC, 2021, Section 120.6 A3 (e)). An example could be that the auditor is economically dependent on the client, and the client is aware of this and threatens to discontinue the audit.

However, even if audit quality might suffer through the abovementioned independence threats, some situations might, by contrast, improve the auditor's competence. For instance, familiarity through longer auditor tenure could lead to more client-specific knowledge (Johnson *et al.*, 2002), or the provision of NAS could lead to knowledge spillovers (Knechel *et al.*, 2012), which might increase auditor competence and thus audit quality. Therefore, the overall net effect on audit quality is not always clear, especially when assessing the implications and consequences of (regulatory) measures. Therefore, both dimensions of audit quality need to be considered, the same as other related factors affecting the audit market, including overall welfare effects (e.g., transaction or information costs) (Gerakos and Syverson, 2015).

Based on economic theory, the auditing literature has typically defined auditing as a type of economic good (Simunic, 1980), where the objective is to produce a homogeneous product that meets technical requirements with a focus on minimizing costs. Following this theory, the audit output is homogeneous and appropriate quality is achieved by fulfilling the requirements of auditing standards and regulation, and the firm's quality objectives (Knechel *et al.*, 2020). However, audit firms are interested in building a perception of constant quality (even as a marketing strategy). This presumption has led to a view of auditing as a homogeneous production process for achieving a uniform set of results with an idealization of high quality. Consequently, substantial emphasis is placed on achieving optimal audit quality and maximizing its

two components, independence and competence, as defined by DeAngelo (1981b) (Knechel *et al.*, 2020). By contrast, Knechel *et al.* (2020) define auditing as a service, because the idiosyncratic nature of the audit, namely having a client as a co-producer, introduces greater heterogeneity relative to the production of goods. However, this view is contrary to the classic audit research paradigm, which views cooperation as a threat to auditor independence and is based on agency theory (Knechel *et al.*, 2020). Agency theory is one of the underlying theories used in this dissertation, as well as the theories of credence goods and of the expectation gap. Accordingly, I will briefly present their main characteristics.

One of the external audit functions is to reduce information asymmetry and agency costs. For this purpose, the auditor issues an auditor's report, which addressees of audited financial statements use (e.g., investors) as one basis for decision-making (Quick, 2020). The role of the auditor within agency theory as part of the new institutional economics (Jensen and Meckling, 1976) is described by Antle (1982, 1984). According to this approach, a principal-agent relationship not only exists between the shareholders (i.e., principal) and the management of a company (i.e., agent), but also between the shareholders and the auditor. The auditor takes on the role of an agent, whom the shareholders elect. Therefore, the individual benefit of the shareholders depends not only on the behavior of management, but also on the auditor's behavior (Antle, 1984). Even though the auditor is supposed to reduce information asymmetries, s/he has an information advantage in her/his relationship with the shareholders in terms of time, facts, and quality (Marten *et al.*, 2020). The auditor verifies the conformity of the annual financial statements and the management report. However, the audit procedures performed by the auditor are not observable to the shareholders (i.e., hidden action). In addition, there is a risk that the auditor will use this information advantage to behave opportunistically (i.e., moral hazard) (Antle, 1984; ICAEW, 2005; Marten *et al.*, 2020). For example, the auditor could reduce the quality of the audit in order to lower the audit costs (e.g., by reducing the number of audit procedures) while maintaining the same audit fees (Magee, 1980; Marten *et al.*, 2020). Therefore, it is essential for addressees of audited financial statements that the audit be performed independently and with high quality, and that they can trust the auditor's work and in her/his opinion in the auditor's report.

Very closely related to the agency theory is the theory of credence goods. A credence attribute of a good (or service) induces the most extreme form of information asymmetry (Dulleck and Kerschbamer, 2006; Causholli and Knechel, 2012). Based on this theory, a credence good has the following characteristics: First, the seller is an expert and provides and recommends a service to a buyer. Second, buyers must rely on the seller's recommendation, as they cannot assess how the service is delivered. Lastly, buyers cannot assess the quality of the delivered service (Darby and Karni, 1973; Dulleck and Kerschbamer, 2006; Causholli and Knechel, 2012). Typical examples of credence goods and services include repair services, taxicab rides in an unfamiliar city, or medical treatments (Dulleck and Kerschbamer, 2006). Following Causholli and Knechel (2012), auditing may also have significant credence attributes because of the audit production process. In line with the assumptions of the audit risk model, there is always a residual risk (i.e., that the auditor does not detect one or more material misstatements) (American Institute of Certified Public Accountants, 1983), and the actual assurance level can never be observed (O'Keefe *et al.*, 1994). Furthermore, the audit process is characterized by its idiosyncratic and uncertain nature. This means that the auditor, as an expert-seller decides how much effort (i.e., how many audit procedures) he exerts to comply with the scope of auditing standards. Moreover, the auditor is involved in both planning the extent of audit procedures and providing the service. The high involvement of judgment in the audit exacerbates the credence features of the audit (Causholli and Knechel, 2012). Even if negotiated audit fees signal the extent of audit procedures the auditor believes are required to achieve the desired assurance level, the audit client cannot observe (even ex post) whether the required level of assurance equals the level of assurance that the auditor initially promised, or the level of assurance the audit client required. Therefore, the auditor acting as an expert-seller has an information advantage, which might facilitate strategic behavior (Causholli and Knechel, 2012).

In addition, the audit also has a social function, as the public and relevant addressees have specific expectations of audit scope and procedures. Usually, the public expectations of the role of the statutory audit and responsibilities deviate from auditors' factual performance as perceived by the public. This phenomenon is known as the

"expectation gap" in the literature (Ruhnke and Schmidt, 2014).[3] This gap is critical, because unfulfilled expectations from the public might impair the value of auditing, the reputation of auditors, and the credibility associated with the work of auditors (Lee and Ali, 2013; Quick, 2020). Therefore, the expectation gap is also a reason for changes to the statutory audit regime, in particular through increased regulation (Ruhnke and Schmidt, 2014). In principle, two approaches are conceivable for closing the expectation gap. On the one hand, the requirements for the auditor can be adapted to the expectations of the addressees (e.g., by expanding the prescribed audit procedures concerning the detection of accounting fraud or by prohibiting the provision of specific NAS). On the other hand, improved and appropriate reporting on the performance and outcome of the audit potentially contribute to reducing the information gap and thus reducing the expectation gap (Quick *et al.*, 2020). Closing the gap might increase the audit's value and the perceived level of audit quality from a stakeholder perspective.

1.3 Overview of Dissertation and Synopses

This dissertation is organized as follows. The introduction (chapter 1) motivates the research questions, outlines the theoretical foundations, describes the dissertation's structure, and gives an overview of further research papers conducted during my time as a research associate and doctoral candidate (but they are not included in this dissertation). Five empirical studies were conducted to address the overarching research question of this dissertation, resulting in eight research papers (each represented in a single chapter; chapters 2 to 9). All research papers use the first-person plural point of view (i.e., 'we'), as multiple authors were involved in their creation. Finally, chapter 10 summarizes the main results, provides an overview of the overall contribution, and gives directions for future research. Table 1 presents a detailed overview of the eight research papers, including the title, context, research questions, underlying data or participants, and empirical method.

Some papers have already been published (Paper 1, Paper 2, Paper 3, Paper 4, Paper 6, and Paper 7). I have not included the published papers in the main body of the dissertation, because the formatting would be inconsistent. Instead, readers can find

[3] For an overview, see, e.g., Porter (1993); Quick (2020).

their title and abstract (both translated into English if the original publication is in German), including the publication's bibliographic reference, on the chapter's title page. Papers 5 is currently under review at the *Journal of International Accounting Research* (second round). A revised version of Paper 8 has now been published in *Corporate Ownership and Control*. In order to be consistent, besides careful formatting changes, including the numbering of sections, standardization of abbreviations (with exception in the abstracts), and tables and reference formatting, chapters 6 and 9 of this dissertation are identical to the revised and (re-)submitted versions.

Paper	Title	Context	Research Question(s)	Data/Participants	Methodology
1	Measures for Strengthening the Independence of PIE Auditors - Results from a Survey with Auditors	Perceived auditor independence	*Which measures do auditors advocate to strengthen the independence of PIE auditors?*	Auditors	Survey
2	Which Measures for Strengthening the Independence of PIE Auditors do Non-Professional Investors Prefer?	Perceived auditor independence	*Which measures do non-professional investors advocate to strengthen the independence of PIE auditors?*	Non-professional investors	Survey
3	Strengthening the Independence of Non-PIE Auditors - Results from a Survey with Auditors and Non-Professional Investors	Perceived auditor independence	*Which measures do auditors and non-professional investors advocate to strengthen the independence of non-PIE auditors?*	Auditors, non-professional investors	Survey
4	Measures for Strengthening Auditor Independence from the Perspective of Bankers	Perceived auditor independence	*Which measures do bankers advocate to strengthen the independence of PIE and non-PIE auditors?*	Bankers	Survey
5	The Effect of Pure Audit Firms, Non-Provision of Non-Audit Services to Audit Clients, and a Statutory Fee Schedule on Audit Quality Perceptions	Perceived audit quality, auditor independence, and auditor competence	*How does a non-provision of NAS (either by pure audit firms, or a non-provision of NAS to audit clients) and a statutory fee schedule affect the audit quality perceptions of bankers and non-professional investors?*	Bankers, non-professional investors	Experimental
6	The Anticipation of Mandatory Audit Firm Rotation and Audit Quality	Factual audit quality	*Does the anticipation of mandatory audit firm rotation affect the quality of first-year audits?*	All German listed firms (2014-2019)	Archival
7	Similarities and “Boilerplates” in the Key Audit Matters Disclosures in the Auditor’s Report of DAX-30 Companies	Perceived audit quality	*Are there text similarities, and are “boilerplates” used in KAM disclosure?*	DAX-30 companies (2017-2019)	Archival
8	Text Similarity, Boilerplates and their Determinants in Key Audit Matters Disclosure	Perceived audit quality	– *How high is the similarity rate of consecutive KAMs on the same issue at a client level when reported by the same/a different auditor?* – *What are determinants of text similarity of consecutive KAMs on the same issue at a client level?*	HDAX companies (2017-2019)	Archival

Table 1: Overview of the research papers

The first empirical study analyzes different potential measures for strengthening auditor independence, both for audits of PIEs and non-PIEs. We conducted a survey, with 431 auditors, 200 non-professional investors, and 86 bankers. The participants were asked to evaluate for each measure the suitability of the proposed measures in order to improve auditor independence. The results of the study are published in four articles.

The first paper focuses on auditor assessments of measures related to the audit of PIEs. Therefore, we state the following research question:

RQ 1.1: *Which measures do auditors advocate to strengthen the independence of PIE auditors?* (Research Project 1; Paper 1)

The results indicate that auditors prefer measures concerning the establishment and audit competence of audit committees, improvements in professional supervision, stricter sanctions for violations of the independence principle, more intensive interaction between the auditor and the annual general meeting, and measures to avoid familiarity and self-interest threats. In contrast, the participating auditors do not consider further restrictions on the provision of NAS to audit clients and an increase in auditor liability as beneficial.

The second paper also discusses potential measures for fostering the independence of PIE auditors, but from the perspective of non-professional investors. Therefore, we state our research question as follows:

RQ 1.2: *Which measures do non-professional investors advocate to strengthen the independence of PIE auditors?* (Research Project 1; Paper 2)

The results show that non-professional investors, in contrast to auditors, generally consider all proposed measures in the survey to be suitable for strengthening auditor independence. Favored measures primarily relate to sanctions against the auditor at various levels (stricter disciplinary measures, the introduction of regulatory fines for violations of the independence principle, the introduction of specific criminal sanctions against auditors, and an increase in the civil liability). Furthermore, participants value measures regarding the compliance management system of audit firms, improvements in professional supervision, strengthening the Federal Financial Supervisory Authority's (Bundesanstalt für Finanzdienstleistungsaufsicht, BaFin) power to pursue suspected cases of violated independence standards, a strict operational separation of an audit

firms audit and consulting activities, and measures regarding the avoidance of familiarity threat. Further restrictions on the provision of NAS to audit clients and stricter rules on external auditor rotation are also seen as useful in order to improve auditor independence, but less strongly preferred by the participants.

In contrast to the first and second paper, the third paper addresses potential measures for strengthening the independence of non-PIE-auditors. This promises interesting and useful insights, as previous research, regulatory and professional discussions have focused predominantly on measures related to the audit of PIEs. We asked both auditors and non-professional investors for answer the following research question:

RQ 1.3: *Which measures do auditors and non-professional investors advocate to strengthen the independence of non-PIE auditors?* (Research Project 1; Paper 3)

Stricter sanctions in the event of a violation of the independence principle are highly and generally accepted by both groups. Auditors further appreciate more audit competence of the supervisory board, a statutory fee schedule for audit services, or the introduction of criminal law and disciplinary sanctions for violations of the independence principle. Non-professional investors also advocate disciplinary sanctions and regulatory fines in cases of a violation of the independence principle. They further appreciate the mandatory establishment of a compliance management system, including a whistleblowing system. By contrast, the majority of both groups rejects the performance of the external audit by a public authority.

The fourth and last paper of Research Project 1 summarizes the banker's assessment. We present both the results for audits of PIEs and non-PIEs. Therefore, we asked the following research question:

RQ 1.4: *Which measures do bankers advocate to strengthen the independence of PIE and non-PIE auditors?* (Research Project 1; Paper 4)

Measures considered useful relate primarily to the introduction of stricter sanctions for violations of the independence principle and increased auditor liability. Furthermore, measures to improve public oversight and increase transparency (such as mandatory attendance of the auditor at the annual general meeting or mandatory preparation of transparency reports for auditors who exclusively audit non-PIEs) receive a high level

of approval. The compulsory establishment of compliance management systems is also perceived by the participants as useful for improving auditor independence. By contrast, the participants do not favor a public authority conducting the audit or the payment of the audit fee by such an authority (e.g., ministry of finance), to be useful for increasing independence, both for audits of PIEs and non-PIEs.

Apart from measures that are already implemented, it is of interest how potential new measures are perceived by relevant stakeholders in order to increase audit quality. Experiments can provide such insights before related measures are in place. Therefore, the fifth paper addresses the following research question:

RQ 2: *How does a non-provision of NAS (either by pure audit firms, or a non-provision of NAS to audit clients) and a statutory fee schedule affect the audit quality perceptions of bankers and non-professional investors?* (Research Project 2; Paper 5)

We conduct a 3 x 2 between-subjects experiment with 79 bankers and 75 non-professional investors. We manipulated the business model of the audit firm regarding the provision of NAS on three levels: pure audit firm vs. non-provision of NAS to audit clients vs. simultaneous provision of audit services and NAS. The second manipulation is the determination of audit fees: a statutory fee schedule vs. internal calculation rates of the audit firm. As dependent variables, we asked participants about their audit quality, auditor competence, and auditor independence perceptions. Our findings indicate that a non-provision of NAS (pure audit firms or non-provision of NAS to audit clients) elicits significantly more positive audit quality (and auditor independence, but not competence) perceptions compared to a situation in which the audit firm simultaneously provides audit services and NAS. Furthermore, audit quality (and auditor competence and independence) perceptions are more positive in the non-provision of NAS to audit clients condition, compared to the pure audit firm condition. Therefore, while stakeholders seem to appreciate a non-provision of NAS to audit clients, a complete non-provision of NAS (i.e., to audit and non-audit clients; pure audit firms) seems to be unnecessary. Finally, when audit fees are based on a statutory fee schedule, perceptions of audit quality (and auditor independence, but not competence)

are significantly more positive than when based on the internal calculation rates by the auditor.

The sixth paper is devoted to the extent to which regulatory measures which have already come into force have an impact on audit quality. In particular, it looks at mandatory audit firm rotation, which was introduced by Regulation (EU) No. 537/2014 in 2014. Although no mandatory rotations for non-financial companies can be observed at the time of the study due to transitional arrangements, effects on rotation behavior and audit quality can nevertheless already be assumed. More specifically, the paper therefore addresses the question of whether audit firm rotation affects the audit quality of engagements in the first year, during the transition period from a voluntary to a mandatory audit firm rotation system, where there are unique supply-side incentives for new auditors. Therefore, we state the following research question:

RQ 3: *Does the anticipation of mandatory audit firm rotation affect the quality of first-year audits?* (Research Project 3; Paper 6)

We analyze a balanced panel of 287 German PIEs from 2014 through 2019. During our sample period, 103 of our sample firms changed their auditor (35.9%). This excludes firms with multiple auditor changes and firms that report an auditor resignation, so that we view these rotations from the perspective of a market anticipating mandatory audit firm rotation. We follow prior research and use discretionary accruals and abnormal working capital accruals to proxy for audit quality, using both traditional two-stage and a one-stage accruals model. Our results show that non-CDAX companies tend to report lower absolute discretionary accruals, absolute abnormal working capital accruals, and total accruals in the first year after rotation. We find no significant difference for first-year audits of CDAX companies. Furthermore, when we repeat our analyses for a period before the EU regulation (2009-2013), we do not find a significant effect for non-CDAX companies. Formal tests between the two periods show that this difference in results is statistically significant. The results indicate that the anticipation of mandatory audit firm rotation improves audit quality for less prominent public clients, but does not seem to affect the existing above-average audit quality of prominent clients (i.e., CDAX companies).

The seventh paper focuses on the KAM disclosure in the auditor's report. Like the European Commission (EC), many regulators and standard setters worldwide have substantially revised the requirements for auditor's reports on statutory audits of PIEs. Their objective was to increase the quality of statutory audits by improving the auditor's report information content, and hence, the transparency of the audit by providing better and more detailed information via the auditor's report (European Commission, 2016), which could also decrease the audit expectation gap. Historically, the auditor's report has frequently been criticized for being uninformative, standardized, containing little firm-specific information, and using generic language (i.e., boilerplate reporting). Related research has so far focused on the question of whether the reporting on KAMs is relevant for decision-making or useful for the addressees. However, usefulness requires the information provided to be new. The novelty of reporting elements has not yet been empirically investigated. Furthermore, critics fear that standard texts, text modules (i.e., boilerplates), and restrained reporting will again become established over time, limiting the intended increase in information value, the relevance of the expanded auditor's report for the addressees, and finally leading to less perceived audit quality. Therefore, we state the following research question:

RQ 4: *Are there text similarities, and are "boilerplates" used in KAM disclosure?* (Research Project 4; Paper 7)

Therefore, we investigate the auditor's reports of DAX-30 companies from 2017 to 2019 to analyze whether the fears are justified. We use the Levenshtein distance as a similarity measure, and analyze the extent to which KAMs on the same issue differ at three levels of comparison: consecutive years of the same client-auditor pair, different clients with the same auditor (regardless of the reporting years), and the same clients with different auditors in consecutive years. The results show that, especially when the auditor does not change, the wording of the KAMs on the same issue of a client is very similar over time. At the level of identical pairs of clients and auditors, the average similarity rate is around 79%. For some KAMs, there is even 100% similarity. If, instead, different clients with the same auditor are considered, the similarity rate decreases significantly, although rates between 11% and 67% can still be identified. These are particularly high for standard issues such as pension provisions. When there is a change of auditor, a similarity rate of around 25% can be identified, suggesting that the new

auditor uses at least some of the formulations of his predecessor. Therefore, it is questionable whether this reporting practice really improves the informational value of the auditor's report, contributes to closing the expectation gap and, accordingly, increases addressee perceptions of audit quality.

Building on these findings, the eighth paper analyzes text similarities between KAMs on the same issue in consecutive periods issued by the same or a different auditor. Furthermore, the paper aims to identify potential determinants of text similarities. Therefore, the paper addresses the following research questions:

RQ 5.1: *How high is the similarity rate of consecutive KAMs on the same issue at a client level when reported by the same auditor?* (Research Project 5; Paper 8)

RQ 5.2: *How high is the similarity rate of consecutive KAMs on the same issue at a client level when reported by a different auditor?* (Research Project 5; Paper 8)

RQ 5.3: *What are determinants of text similarity of consecutive KAMs on the same issue at a client level?* (Research Project 5; Paper 8)

We use textual analysis to investigate whether there are text similarities between KAMs on the same issue, reported by the same auditor in different periods at a client level. We therefore analyze the KAM reporting of German HDAX firms from 2017 to 2019. Second, we repeat the analysis by splitting the sample into an auditor change and a non-change condition, to analyze the effect of an auditor change. Third, we examine potential determinants of text similarities in a panel of 99 German PIEs from 2017 to 2019 (297 auditor's reports). We use the similarity rate of the same KAM issues at a client level and add typical independent variables from prior archival studies on KAM reporting, as potential determinants of text similarity (i.e., the use of boilerplate reporting). Regarding our first analysis, the results show that the similarity rate between KAMs on the same issue, reported by the same auditor, in consecutive periods at the client level is around 80%, suggesting that there is only minor variation in the wording. The similarity rate varies slightly between Big 4 auditors, and is higher for non-Big 4 auditors. By contrast, the similarity rate declines to 27% after an auditor change. This confirms our descriptive results from the seventh paper and is also confirmed by our

multivariate analysis, as the change of audit firm has a significantly negative effect on the text similarity. By contrast, a high proportion of equity favors the use of boilerplates. However, other factors related to the client's financial position, size and visibility, corporate governance strength, or the auditor's tenure, do not affect text similarity. Again, it is questionable whether this reporting practice is appropriate for increasing both information value and audit quality perceptions, and whether it contributes to closing the expectation gap.

1.4 Further Research Papers

In addition to the research papers in the previous section, the following articles were also published, or submitted for publication during my time as a research associate and doctoral candidate. However, these articles are not part of this dissertation:

- Quick, R., Pappert, N. and Rose, J. (2023), "Zur Lesbarkeit von Key Audit Matters - Eine empirische Untersuchung zu den Bestätigungsvermerken der HDAX-Unternehmen", *Die Wirtschaftsprüfung*, (forthcoming).
- Pappert, N., Bauer, S., Friedrich, C. and Quick, R. (2023), "Auswirkungen des Wirecard-Skandals auf die wahrgenommene Prüfungsqualität von EY", *Betriebswirtschaftliche Forschung und Praxis*, (forthcoming).
- Friedrich, C., Pappert, N. and Quick, R. (2023), "Determinanten der Abschlussprüferhonorare bei Genossenschaftsbanken", *Zeitschrift für das gesamte Genossenschaftswesen*, (forthcoming).
- Quick, R. and Pappert, N. (2022), "Empirische Analyse der Transparenzberichterstattung deutscher Abschlussprüfer für die Berichtsperiode 2020/21", *Die Aktiengesellschaft*, Vol. 67 No. 12, pp. 417–426.
- Quick, R., Pappert, N. and Gauch, K. (2021), "Praxis der nichtfinanziellen Berichterstattung zu Sozialbelangen und deren Prüfung im DAX-30", *IRZ - Zeitschrift für internationale Rechnungslegung*, Vol. 16 No. 5, pp. 239–243.
- Quick, R., Gauch, K. and Pappert, N. (2021), "Nichtfinanzielle Berichterstattung zu den Umweltbelangen in den Geschäftsberichten der DAX-30-Unternehmen", *Betriebs-Berater*, Vol. 76 No. 15, pp. 875–879.

– Quick, R. and Pappert, N. (2021), “Maßnahmen zur Regulierung der gesetzlichen Abschlussprüfung - Ergebnisse einer experimentellen Untersuchung”, *Board – Zeitschrift für Aufsichtsräte in Deutschland No.* 1, pp. 17–21.
– Quick, R. and Pappert, N. (2021), “Transparenzberichterstattung des Abschlussprüfers”, *WiSt - Wirtschaftswissenschaftliches Studium*, Vol. 50 No. 1, pp. 13–18.
– Quick, R., Pappert, N. and Meier-Scheuven, J. (2020), “Berichterstattung zu Forschung und Entwicklung in den Konzernlageberichten der Unternehmen im DAX und MDAX”, *Der Konzern*, Vol. 18 No. 07/08, pp. 294–301.

Chapter 2: Measures for Strengthening the Independence of PIE Auditors – Results from a Survey with Auditors

Abstract (unofficial translation):

Accounting scandals are a regular trigger for regulatory reforms, affecting the statutory audit and including measures for strengthening auditor independence. An example is the Financial Market Integrity Strengthening Act (Gesetz zur Stärkung der Finanzmarktintegrität, FISG) as a reaction to the Wirecard scandal. However, standard-setters often focus on mandatory auditor rotation and restrictions on providing of non-audit services to audit clients, but often neglect alternative measures for strengthening auditor independence. Against this background, we asked auditors about potential independence-promoting measures in the context of the statutory audit of public interest entities (PIEs). This article presents the study and discusses its results.

Publication:
Quick, R., Krones, L. and Pappert, N. (2022), "Maßnahmen zur Stärkung der Unabhängigkeit von PIE-Abschlussprüfern – Ergebnisse einer Befragung von Wirtschaftsprüfern", *Die Wirtschaftsprüfung*, Vol. 75 No. 6, pp. 320–327.

Chapter 3: Which Measures for Strengthening the Independence of PIE Auditors do Non-Professional Investors Prefer?

Abstract (unofficial translation):

Accounting scandals regularly lead to the auditor's work and independence being called into question, and, to corresponding regulatory measures. In the past, regulators focused primarily on restrictions to the provision of non-audit services to audit clients and on mandatory internal and external auditor rotation, but largely ignored conceivable alternative measures. Against this background, we asked non-professional investors about potential independence-strengthening measures regarding the statutory audit of public interest entities (PIEs). This article presents the results of the study.

Publication:
Quick, R., Krones, L. and Pappert, N. (2021), "Welche Maßnahmen zur Stärkung der Unabhängigkeit von PIE-Abschlussprüfern präferieren Aktionäre?", *Zeitschrift für Recht und Rechnungswesen*, Vol. 31 No. 10, pp. 311–316.

Chapter 4: Strengthening the Independence of Non-PIE Auditors – Results from a Survey with Auditors and Non-Professional Investors

Abstract (unofficial translation):

Accounting scandals regularly trigger regulatory reforms, including measures for strengthening auditor independence. To this end, regulators concentrate primarily on traditional measures such as mandatory auditor rotation or restrictions to the provision of non-audit services on the one hand and audits of public interest entities (PIEs) on the other. Other measures or audits of non-PIES are often neglected. Accordingly, this article presents the results of a survey of auditors and non-professional investors about measures for strengthening the independence of auditors of non-PIEs.

Publication:
Quick, R., Krones, L. and Pappert, N. (2022), "Stärkung der Unabhängigkeit von Non-PIE-Abschlussprüfern - Ergebnisse einer Befragung von Wirtschaftsprüfern und Aktionären", *Zeitschrift für Corporate Governance*, Vol. 17 No. 1, pp. 25–29.

Chapter 5: Measures for Strengthening Auditor Independence from the Perspective of Bankers

Abstract (unofficial translation):

Accounting scandals regularly trigger regulatory reforms, including measures for strengthening auditor independence. In doing so, standards-setters tend to focus on mandatory audit firm rotation and restrict the provision of non-audit services to audit clients, but often neglect alternative measures. This study presents and discusses the results of a survey of bankers regarding potential independence-strengthening measures.

Publication:
Quick, R., Krones, L. and Pappert, N. (2021), "Maßnahmen zur Stärkung der Unabhängigkeit des Abschlussprüfers aus Sicht von Bankern", *Der Betrieb*, Vol. 74 No. 49, pp. 2913–2918.

Chapter 6: The Effect of Pure Audit Firms, Non-Provision of Non-Audit Services to Audit Clients, and a Statutory Fee Schedule on Audit Quality Perceptions

Abstract:

An ongoing debate among accounting academics and regulators revolves around instruments for strengthening the audit quality perceptions of financial statements users. Despite constant regulatory change, the occurrence of accounting scandals (e.g., Carillion in the UK or Wirecard in Germany) has reignited public allegations that the existing regulation is insufficient. Therefore, this study investigates two measures that lack empirical evidence but could theoretically improve perceived audit quality. These are a non-provision of NAS (either by pure audit firms, or a non-provision of NAS to audit clients) and a statutory fee schedule. We conduct an experiment with German bankers and non-professional investors. The results indicate a positive main effect of a non-provision of NAS, and a statutory fee schedule on perceived audit quality and auditor independence; but not on perceived competence. Furthermore, we find that a complete non-provision of NAS (i.e., to audit and non-audit clients; pure audit firms) seem to be unnecessary.

Working Paper:
Pappert, N. and Quick, R. (2022), "The Effect of Pure Audit Firms, Non-Provision of Non-Audit Services to Audit Clients, and a Statutory Fee Schedule on Audit Quality Perceptions", *Working Paper (under review (second round) at: Journal of International Accounting Research)*.

Conferences and Workshops:
- 2022 Auditing Section Midyear Meeting, American Accounting Association, Las Vegas
- 2022 International Accounting Section Midyear Meeting, American Accounting Association, online
- 32nd Audit & Assurance Conference, British Accounting & Finance Association, Auditing Special Interest Group, Birmingham

- 44th Annual Congress, European Accounting Association, Bergen
- 26th Annual International Symposium on Audit Research, online
- The Ninth International Conference of the Journal of International Accounting Research (JIAR), American Accounting Association, online
- 3rd ENEAR Experimental Accounting Research Conference, European Network on Experimental Accounting Research, Sevilla

6.1 Introduction

This study investigates experimentally how a non-provision of NAS (either by pure audit firms or non-provision of NAS to audit clients)[4] and a statutory fee schedule impact on banker and non-professional investor perceptions of audit quality. Auditors provide an opinion on financial reports prepared by the management of a firm, a task that is critical for investor confidence in financial statements and contributes to capital market stability (Newman *et al.*, 2005). However, this function can only be fulfilled if adequate audit quality is both provided and perceived by the addressees of audited financial statements (Maijoor and Vanstraelen, 2012). Decades of academic and regulatory debate have resulted in ongoing changes to audit regulation with the aim of improving factual and perceived audit quality.[5] Despite these extensive audit market reforms, there is still an ongoing discussion among audit researchers, regulators, the public, and the auditing profession, as to whether these measures are sufficient. This has revived discussions about certain measures that were initially discussed but finally abandoned in earlier regulatory reforms.[6] Recent accounting scandals and auditor failures have fueled these debates (e.g., Carillion and British Home Stores in the UK or Wirecard and Greensill Bank in Germany). A fundamental, well-known criticism is related to the revenue generation of audit firms, especially the dominance of revenue from consulting services (Rapoport, 2018; Lisic *et al.*, 2019). As a reaction to the recent scandals, regulators in the UK and Germany have already further restricted the provision of NAS. For example, the British FRC ordered the Big 4 audit firms to break up their operational

[4] In the following, we use the term "non-provision of NAS" to subsume both measures (i.e., pure audit firms and a non-provision of NAS to audit clients).

[5] Major reforms in the last decades include SOX in the US, (Directive 2006/43/EC; Directive 2014/56/EU and Regulation (EU) No. 537/2014 in the EU.

[6] E.g., the EC proposed creating pure audit firms within its 2010 green paper (European Commission, 2010). However, following extensive feedback and discussion process, the EU only implemented a cap on NAS fees and a detailed blacklist of prohibited NAS (Article 4 and 5 Regulation (EU) No. 537/2014).

business into an audit and a consulting unit by June 2024 (Financial Reporting Council, 2020). Currently, the British government is also considering an application of operational split to other statutory auditors (UK Government Department for Business, Energy and Industrial Strategy, 2021). Moreover, the FRC only allows the provision of specific NAS directly linked to the audit (Financial Reporting Council, 2019). The German legislator has decided to further restrict the provision of specific tax consulting and valuation services to audit clients (FISG, 2021). Furthermore, there are also examples of audit firms that have already started their own initiations (e.g., KPMG UK's initiative to no longer perform consultancy work for its FTSE 350 audit clients (Jolly, 2018) or EY's current plan to split its audit and advisory operations worldwide (O'Dwyer, 2022).

These fundamental debates could benefit from evidence on the implications of hitherto untested measures that could alleviate (perceived) audit quality[7] threats from the revenue generation model of audit firms. Experiments can provide such evidence before related measures are implemented. For this study, we choose to experimentally investigate two variants of a non-provision of NAS (i.e., pure audit firms, or a non-provision of NAS to audit clients) as a popular measure for changing audit firm revenue generation. However, such a measure would not change the fundamental contractual features of the audit service. Therefore, we add another, less frequently discussed measure to our experiment that would fundamentally alter the revenue generation of audit services: a statutory fee schedule for all statutory audits. Currently, audit fees are less regulated and subject to individual negotiations between the auditor and the client. The idea behind such a fee schedule is also in line with current discussions in the UK, where the aim is to create an independent and transparent fee-setting process (Brydon, 2019; UK Government Department for Business, Energy and Industrial Strategy, 2021).

Theoretically, a non-provision of NAS may lead to a loss of client-specific knowledge spillovers from NAS to auditing, hence reducing auditor competence. On the other hand, the auditor might be more independent, as the economic bond between auditor

[7] We follow DeAngelo (1981b)and conjecture that audit quality perceptions depend on perceived auditor competence and perceived auditor independence. See section 6.2 for details. Note that, in our theoretical discussion, we do not distinguish between factual and perceived audit quality because theoretical arguments are identical for both dimensions.

and client is reduced (Ratzinger-Sakel and Schönberger, 2015). Furthermore, a non-provision of NAS could lead to a situation in which the auditor's focus is solely on auditing instead of consulting activities that might be more lucrative, due to higher margins and growth rates. Therefore, there might be positive competence effects through a singular focus on auditing (Hermanson *et al.*, 2020), but independence could suffer because the auditor might be more dependent on (audit only) clients. However, the net effect on audit quality is unclear. Numerous studies have examined whether NAS affects audit quality in different jurisdictions. Prior research on the association between the provision of NAS and factual audit quality is mixed. Some studies reveal a negative association (e.g., Kinney *et al.*, 2004; Krishnan and Yu, 2011; Campa and Donnelly, 2016; Lennox, 2016), and a few show a positive relationship (e.g., Svanström, 2013; Luo, 2019), but the rather narrow majority fails to find a significant association (e.g., Ashbaugh *et al.*, 2003; Chung and Kallapur, 2003; Ruddock *et al.*, 2006; Lim and Tan, 2008; Knechel and Sharma, 2012; Park *et al.*, 2017; Castillo-Merino *et al.*, 2019). Various studies confirm negative effects on stakeholder perceptions (e.g., Lowe *et al.*, 1999; Lim and Tan, 2008; Meuwissen and Quick, 2019). However, this research generally focuses on the extent of NAS provision to audit clients (vs. the complete non-provision of NAS to audit clients and non-audit clients as examined here) and does not consider pure audit firms. Exceptions include a few experiments that examine dichotomous (yes/no) differences in NAS provision (e.g., Shockley, 1981; Gul, 1991; Patel and Psaros, 2000). Based on the above arguments and considering the substantial potential to improve independence, we hypothesize positive perception effects on audit quality when there is a non-provision of NAS.

Regarding the theoretical effects of a statutory fee schedule, downside fee pressure could impair auditor competence. Low fees could result in a reduction of audit effort or the allocation of insufficiently qualified staff. Moreover, low audit fees increase incentives to sell NAS to audit clients, which, in turn, may threaten auditor independence. By contrast, unusual high audit fees could also threaten auditor independence. Clients could use higher fees to pay for dependent auditor behavior (e.g., allowing opportunistic earnings management through the client's management (Choi *et al.*, 2010)). Furthermore, abnormally high audit fees increase the economic bond between auditor and client, posing another independence threat. Therefore, a statutory

fee schedule that avoids severe under- or overpricing of auditing could guard against such competence and independence impairments. We are not aware of prior empirical evidence on the effect of a statutory fee schedule on perceived audit quality. However, we hypothesize that perceived audit quality would be higher when a statutory fee schedule is applied in the context of our theoretical arguments.

To test our hypotheses, we conduct a 3 x 2 between-subjects experiment with two groups of major capital providers and addressees of audited financial statements, namely bankers and non-professional investors. We manipulated the business model of the audit firm regarding the provision of NAS on three levels: pure audit firm vs. non-provision of NAS to audit clients vs. simultaneous provision of audit services and NAS. The second manipulation is the determination of audit fees: a statutory fee schedule vs. internal calculation rates of the audit firm. As dependent variables, we asked participants about their audit quality, auditor competence, and auditor independence perceptions. We received 154 useable responses after the elimination of comprehension and manipulation check failures.

Our findings indicate that a non-provision of NAS (pure audit firms or non-provision of NAS to audit clients) elicits significantly more positive audit quality (and auditor independence, but not competence) perceptions compared to a situation in which the audit firm simultaneously provides audit services and NAS. Furthermore, audit quality (and auditor competence and independence) perceptions are more positive in the non-provision of NAS to audit clients condition, compared to the pure audit firm condition. Therefore, while stakeholders seem to appreciate a non-provision of NAS to audit clients, a complete non-provision of NAS (i.e., to audit and non-audit clients; pure audit firms) seems to be unnecessary. Finally, when audit fees are based on a statutory fee schedule, perceptions of audit quality (and auditor independence, but not competence) are significantly more positive than when based on the internal calculation rates by the auditor.

Our study contributes to the current debate, following recent accounting scandals, on potential measures affecting the revenue generation of audit firms. To the best of our knowledge, this is the first study to investigate the impact of pure audit firms and a voluntary self-restraint (i.e., non-provision of NAS to audit clients) on audit quality

perceptions. Therefore, we provide a new perspective on a traditional research area with (so far) ambiguous results. Moreover, and when referring to prior research, this is also the first study that empirically investigates the effect of a statutory fee schedule on perceived audit quality. Accordingly, we are responding to a call from Beck *et al.* (2013) to investigate new ways for regulation to improve the ability of investors to evaluate auditor independence. A statutory fee schedule would allow additional and detailed insights into audit fee structures. Currently (except for Korea), only the total amount of audit fees is public available for users.[8] Above and beyond that, our study provides insights from two major stakeholder groups (i.e., representatives of equity and debt capital; informed vs. less-informed stakeholders). By contrast, prior studies have predominantly used students to proxy for non-professional investor perceptions. Finally, we contribute to the overall discussion on further measures to increase audit quality, and the academic discussion about the related advantages and disadvantages.

Our findings may be of practical relevance through offering regulators further measures to change the revenue-generation model of auditors. Furthermore, auditors might benefit from insights into how self-constraints in NAS provision (even pure audit firms or a non-provision of NAS to audit clients) can increase perceptions of relevant stakeholders, and a statutory fee schedule could protect from insufficient audit fees. Members of audit committees gain insights into, whether they should permit or not permit the provision of NAS by the auditor. In addition, a statutory fee schedule could make it easier for them to negotiate appropriate audit fees. Finally, our results can also help users of financial statements to acquire a better sense of how to evaluate the provision of NAS. They can also benefit from a statutory fee schedule, because it ensures appropriate audit fee levels and avoids over- or underpayment.

The remainder of this paper is organized as follows. In the next section, we describe the theoretical background, review the literature, and develop our hypotheses. Section 6.3 reports the research design, including the experimental case and task, the variables, and the participants. In Section 6.4, we present our experimental results. Section 6.5 concludes and summarizes the main findings.

[8] In Korea, the disclosure of audit hours is also required in company annual reports (Bae *et al.*, 2016).

6.2 Theoretical Background, Literature Review, and Development of Hypotheses

Audit fees are presently subject to free negotiations between the auditor and the client in almost all audit settings. Moreover, although most jurisdictions have implemented a restriction to selling certain other services to a statutory audit client, many statutory auditors bundle other professional services (i.e., NAS) with the statutory audit to generate higher revenue from an existing audit client. Accordingly, the specific characteristics of the revenue generation process could be critical determinants of audit quality. However, the audit can only fulfill its function if adequate quality is provided. Audit services are credence goods (Causholli and Knechel, 2012), and essential elements of these services are not observable to the addressees of audited financial statements. Hence, it is not sufficient that the auditor provides a high factual audit quality; it must also be perceived as high by the users of audited financial statements. Taking this into account, DeAngelo (1981b) defines audit quality as the market-assessed joint probability that a given auditor will discover a breach in the accounting system of the client (perceived auditor competence) and report the breach (perceived auditor independence).[9] We follow this distinction in our discussion of the potential effects of the studied features of audit firm revenue generation below. While our focus is on quality, competence, and independence perceptions, our theoretical discussion does not preclude the same theoretical mechanisms from also affecting factual audit quality.

6.2.1 Pure Audit Firms and Non-Provision of NAS to Audit Clients

The bundling of audit services and NAS to generate revenue from audit clients has been the subject of substantial academic and regulatory discussions in the last few decades.

[9] Watkins *et al.* (2004) expand this view with a factual dimension (audit quality in fact, i.e., factual competence and independence). Moreover, DeFond and Zhang (2014) define audit quality as "greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics." Therefore, they do not see auditing as a mere binary process of detecting and reporting "black and white" GAAP violations. Similarly, Francis (2011) defines audit quality as a continuum from low- to high-quality audits, which is affected by several factors (e.g., audit tests, engagement team personnel, institutions affecting auditing). Finally, and referring to the audit quality framework of the IAASB, "audit quality encompasses the key elements that create an environment that maximizes the likelihood that quality audits are performed on a consistent basis". The framework consists of inputs, processes, outputs, key interactions within the financial reporting supply chain, and contextual factors (IAASB, 2014).

Yet, academics still present inconclusive results, and regulators still struggle to find the most appropriate restrictions. For example, the EC started intensive reform discussions by issuing its Green Paper after the 2008/2009 global financial crisis (European Commission, 2010). It included debates about prohibiting all NAS-provisions to audit and non-audit clients (i.e., the creation of so-called pure audit firms). The resulting Regulation (EU) No. 537/2014 prohibited some NAS, combined with a cap on NAS fees for audits of PIEs at 70% of the audit fee, a considerable change in European audit regulation (Ratzinger-Sakel and Schönberger, 2015). Nonetheless, recent accounting scandals in the UK (e.g., Carillion or British Home Stores) and Germany (e.g., Wirecard or Greensill Bank) have revived discussions on the prohibition of all NAS for audit clients, or even the introduction of pure audit firms (e.g., Ford and Marriage, 2018; Competition and Markets Authority, 2019) and initiated change in the audit market. For example, KPMG UK announced that it would no longer perform consultancy work for its FTSE 350 audit clients (Jolly, 2018). The FRC ordered the Big 4 audit firms to break up their operations into an audit and a consulting unit by June 2024 (Financial Reporting Council, 2020). The Wirecard scandal has resulted in new regulations concerning NAS in Germany, and early-stage discussions of European regulatory changes. Furthermore, EY currently plans to split its audit and advisory operations worldwide (O'Dwyer, 2022).

Theoretical arguments on the simultaneous provision of audit services and NAS are ambiguous. If the auditor provides NAS to audit clients, knowledge spillovers can indeed increase audit quality, but also reduce audit production costs (Beck *et al.*, 1988) which in turn may increase quasi-rents and, therefore, the economic bond (DeAngelo, 1981a). In addition, the simultaneous provision of audit services and NAS may also increase the economic bond between auditor and client due to higher total fees, which could threaten independence. Beyond economic bonding, auditor independence may be at risk from a self-review threat (the auditor may overlook or conceal misstatements resulting from NAS); a familiarity threat (NAS create a special bond of trust between client and auditor); and an advocacy threat (IFAC, 2021). The net effect of potential competence gains and independence losses on audit quality remains unclear.

The discussed theoretical effects also apply to a non-provision of NAS to audit clients and pure audit firms. In both cases, there are substantial independence gains. By

contrast, their impact on competence is theoretically unclear. On the one hand, competence might suffer because organizational learning from the NAS provision does not take place. This effect is less pronounced in cases of a non-provision of NAS to audit clients, since the auditor can still generate knowledge spillovers from NAS provision to other clients within the same industry. On the other hand, competence might improve due to a clearer focus on audit services. Such a focus should be stronger in the case of pure audit firms.

Prior research on the effect of NAS provision on factual audit quality and/or auditor independence is mainly based on archival studies. Audit quality cannot be observed directly, and therefore, audit quality proxies[10] are used, such as earnings management (e.g., Ferguson *et al.*, 2004; Lim and Tan, 2008; Knechel and Sharma, 2012; Eilifsen and Knivsflå, 2016; Castillo-Merino *et al.*, 2019), qualified or going concern opinions (e.g., Lim and Tan, 2008; Hope and Langli, 2010; Ratzinger-Sakel, 2013; Lennox, 2016), restatements (e.g., Ferguson *et al.*, 2004; Kinney *et al.*, 2004; Campa and Donnelly, 2016; Lennox, 2016; Lisic *et al.*, 2019; Castillo-Merino *et al.*, 2019; Beardsley *et al.*, 2021), or auditor litigation (e.g., Bajaj *et al.*, 2003). Besides these archival studies, there are only a few experiments (e.g., Joe and Vandervelde, 2007; Kowaleski *et al.*, 2018). The results are inconclusive, with a small majority of the studies finding mixed evidence on the relationship between NAS fees and audit quality in fact.

There are also many studies analyzing the effect of providing NAS on audit quality and/or auditor independence perceptions. These studies are based generally on interviews (e.g., Gendron and Suddaby, 2004; Sawan *et al.*, 2013), surveys (e.g., Dart, 2011; Quick and Warming-Rasmussen, 2005, 2009; Svanström, 2013; Albaqali and Kukreja, 2017; van Liempd *et al.*, 2019), and archival studies, which mainly uses market reactions to disclosed NAS fees (e.g., Chaney and Philipich, 2002; Mishra *et al.*, 2005; Khurana and Raman, 2006; Lim and Tan, 2008; Eilifsen and Knivsflå, 2013; Campa and Donnelly, 2016; Alsadoun *et al.*, 2018; Lisic *et al.*, 2019).

Also, many experimental studies on the impact of the joint provision of audit services and NAS on perceived audit quality and/or auditor independence have been performed

[10] For a critical overview of proxies for audit quality, see DeFond and Zhang (2014).

(e.g., Shockley, 1981; Pany and Reckers, 1983; Pany and Reckers, 1984; Knapp, 1985; McKinley *et al.*, 1985; Gul, 1987; Pany and Reckers, 1988; Gul, 1989; Lindsay, 1990; Gul, 1991; Agacer and Doupnik, 1991; Lindsay, 1992; Lowe and Pany, 1995; Teoh and Lim, 1996; Lowe *et al.*, 1999). The majority of these studies reveal a negative impact on perceptions of audit quality and/or auditor independence. Below, we discuss in more detail, findings from related experimental studies after the millennium.

Swanger and Chewning (2001) demonstrate that US financial analyst auditor independence perceptions are lower when the auditor also provides internal audit services. Hill and Booker (2007) report experimental results on US accountancy regulator perceptions, indicating a significant decrease in perceived auditor independence when the auditor also performs internal audit activities for non-PIEs. Providing evidence from US investors, Davis and Hollie (2008) reveal an adverse effect of NAS fees on perceived auditor independence. Using 168 court jurors from the US as participants, Thornton and Shaub (2014) indicate that the type of tax services provided impacts on juror assessment's of audit quality. They show that aggressive tax planning services have a negative impact on perceived audit quality, whereby tax preparation services have no effect. Church and Zhang (2011) reveal that the decision-making context (negative versus lack of negative outcome) dramatically affects independence perceptions. They find evidence that NAS user assessment, depending on the context, could be negative or positive. They use business students from the US as a proxy for non-professional investors. By contrast, Jenkins and Krawczyk (2002) show that the degree of perceived auditor independence increases when NAS are provided. They examine the effect of different NAS on perceived auditor independence using responses from US investors and accounting firm professionals.

Patel and Psaros (2000) experimentally analyze the effect of designing and installing a new financial and management accounting system on auditor independence perceptions, using responses from undergraduate accounting students from the UK, Australia, India, and Malaysia. They demonstrate that this provision increases the perceived likelihood of auditor independence impairment. However, they cannot confirm this effect for the Indian subsample. Mauldin (2003) presents experimental evidence regarding professional investor judgments. She reveals that the stock recommendations of participants did not vary between outsourced internal audit NAS

and those related to mergers and acquisitions. However, both types were perceived to impair auditor independence (as the provision of NAS in general). Aschauer and Quick (2018) show that Austrian credit institution investment consultants perceive auditor independence and audit quality to be higher when auditor-provided tax services are prohibited. Yet, the effects disappear when the ban on tax services is combined with mandatory audit firm rotation. Quick and Warming-Rasmussen (2015) provide evidence from Germany on various threats to auditor independence perceptions related to several NAS. Using non-professional investor responses, they show experimentally that the provision of NAS has a negative impact on independence in appearance, and that the effect depends on the type of NAS. An advocacy threat seems to have no effect, and a self-interest threat appears to have a strong negative impact on perceived auditor independence. Meuwissen and Quick (2019, 2009a) show, in an experiment with German supervisory board members, that the provision of NAS has a negative impact on perceived auditor independence. They further reveal that the effect is strongest when human resource consulting services are provided.

To sum up, research results on perceptions of audit quality and auditor independence are ambiguous, potentially due to differences in research designs, the analysis of different types of NAS, cultural differences, and the use of different user groups. However, most of the studies reveal an adverse effect of the joint provision of audit services and NAS on perceived audit quality, mainly through a threat to auditor independence.

Therefore, and combined with the theoretical considerations of substantial potential to improve independence, we expect a non-provision of NAS to any client (pure audit firm case) or all audit clients, to increase audit quality perceptions, even though auditor competence might suffer to some extent through the loss of knowledge spillovers. However, this may be offset through an improved focus on audit services. We also study perceived independence and competence separately, so as to gain a deeper understanding of the underlying formation of audit quality perceptions. Given our expectation of strong independence effects, we hypothesize a positive effect on auditor independence perceptions. However, we state our competence hypothesis (*H1b*) in the null form, due to the expected counteracting competence effects.

H1: When there is a non-provision of NAS, perceived audit quality is higher compared to the joint provision of audit services and NAS.

H1a: When there is a non-provision of NAS, perceived auditor independence is higher compared to the joint provision of audit services and NAS.

H1b: When there is a non-provision of NAS, perceived auditor competence is not affected compared to the joint provision of audit services and NAS.

6.2.2 Statutory Fee Schedule

In most auditing settings around the world, audit fees are subject to individual, free negotiations between the client and the auditor, with only broad regulatory boundaries. For instance, the EU prescribes in Articel 25, Directive 2006/43/EC, that member state regulations shall ensure that audit fees are not influenced or determined by providing additional services and cannot be based on any form of contingency.[11] Some member states (e.g., Belgium, Germany, France, the Netherlands, and Portugal) have additional professional and ethical rules requiring that audit fees be adequately proportionate to the auditing work (European Economic and Social Committee, 2013).[12] Slovakia requires a minimum number of hours for the audit, based on the client's total assets. In France, hourly rates are freely negotiable, but the number of hours is determined (within a range) based on the total assets of the audit client (European Economic and Social Committee, 2013). In Tunisia, audit fees are fixed, and the scale depends on the client's number of employees, revenue, and assets (Khrouf and Arnold, 2018). However, statutory fee schedules do not exist. Such a schedule could entail a complete listing of fees for single audit procedures (e.g., fixed amounts, or hourly rates per audit procedure, differentiated by hierarchical levels). The setting process could be subject to an independent state authority. Until 2006, Section 55 of the Public Accountant Act gave German authorities the power to enact a statutory fee schedule. Nevertheless, such a schedule was desired neither by the economy nor the profession, nor was it demanded

[11] As an example from the US, the PCAOB states that an audit firm is not independent of its audit client if it provides its services for a contingent fee (Rule 3521, Section 3, Auditing and Related Professional Practice Standards).

[12] Another example of a regulatory boundary in Germany: a flat-fee remuneration, is only allowed if there is a provision for the audit fee to be increased in the case of unforeseeable events on the client's side, which leads to a considerable increase in the time and effort required (Professional Charter for Professional Accountants in Public Practice, 2016).

on a broad level, at the time, resulting in abolishing the authorization (BT-Drucksache 16/2858, 2006). However, a fee schedule model does exist for auditors of German cooperatives ("Genossenschaften"), cooperative banks ("Genossenschaftsbanken"), and saving banks ("Sparkassen") due to some legal and organizational particularities.[13] Furthermore, statutory fee schedules also already exist for comparable free professions in Germany (e.g., tax advisors, notaries, or lawyers), mainly to protect clients (Peemöller, 2012).

Theoretically, a statutory fee schedule could alleviate downside fee pressure, which would result in impairments of audit quality due to auditor resource constraints and lower auditor effort (Hoitash *et al.*, 2007).[14] Low audit fees restrict auditors in executing necessary audit procedures with qualified staff and pressure them to use more efficient audit procedures (e.g., using big data technologies or outsourcing through shared-service centers), which could significantly negatively affect audit quality perceptions or threaten audit quality by way of over-standardization (Knechel *et al.*, 2020).[15] Moreover, low audit fees may increase incentives to sell NAS (even to audit clients), which, in turn, may threaten auditor independence. Researchers have expressed strong concerns regarding broad downside fee pressure in recent years (Ettredge *et al.*, 2014). Observations of an overall decline in audit fees are exacerbating these concerns (e.g., in the US, the PCAOB expressed concerns about audit fee decreases and its effect on audit quality (Cohn, 2014)).

Similarly, a statutory fee schedule could alleviate longstanding concerns about potential low-balling for initial audit engagements (DeAngelo, 1981a).[16] Furthermore, it could improve audit fee transparency to users of financial statements (Schmitt, 2019),

[13] Cooperatives and cooperative banks have to belong to a cooperative auditing federation ("Genossenschaftlicher Prüfungsverband"), which is responsible for the external audit of its members. These federations use fee schedules, which are determined by their supervisory board, in order to calculate audit fees. This is quite similar for saving banks, which are audited by the auditing division of the Savings Banks and Giro Association ("Prüfungsstelle des Sparkassen- und Giroverbands"), to which the institute relates. For an overview of German banking industry particularities, see Mare & Gramlich (2021) for cooperative banks and Decker (2018) for saving banks.

[14] Practice-oriented literature has also voiced the idea of using a statutory fee schedule to improve auditor resources (Peemöller, 2012; Kirchner, 2020).

[15] While our focus is on perceived audit quality, these arguments are essentially based on the effects on factual audit quality. However, they should also impact participants' audit quality perceptions.

[16] However, recent research questions low-balling practices (e.g., Barua *et al.*, 2020) or even finds that low-balling does not impair audit quality (e.g., Cho *et al.*, 2021).

potentially making fees a better indicator of auditor effort and, ultimately, of audit quality.[17] Finally, a statutory fee schedule could also alleviate threats to auditor independence from economic bonding, by giving individual clients less leeway to create stronger bonds through comparably high billing rates (i.e., a fee schedule avoids excessive audit fees/audit fee premiums for favors or giving up independence).

In conclusion, a statutory fee schedule is a measure for ensuring adequate audit fees in support of sufficient auditor competence and independence. As audit fees would be calculated on an equal calculation basis, auditors do no longer compete on prices. At the same time, a statutory fee schedule does not reduce incentives to improve audit efficiency, because efficiency gains would still increase the margin. Moreover, the likelihood of insufficient audit quality decreases, because both downside fee pressure and a situation in which the auditor is willing to accept lower audit fees to retain clients for reputational reasons is avoided. The increased transparency could also counteract potential perceived auditor independence threats from stakeholders, which may arise if audit fee differences across comparable client firms are not easily understood. Although a statutory fee schedule primarily protects the auditor, ensuring independence, competence, and ultimately, audit quality, it also protects other stakeholders. On the flip side, a statutory fee schedule may impair market competition and the ability of audit firms to charge higher audit fees in extraordinary situations (Khrouf and Arnold, 2018). Initial audit engagements, for instance, cause additional start-up costs which are not covered by a fee schedule. In addition, it is questionable whether a state authority has the necessary expertise to set a fee schedule for auditors.

To the best of our knowledge, prior research on a statutory fee schedule is limited to just two surveys, which cover a fee schedule among various features of the audit setting. Both studies were conducted in Germany. Meuwissen and Quick (2009b) asked supervisory board members to evaluate various measures aimed at increasing auditor independence. Their results show that supervisory board members do not consider a statutory fee schedule an effective measure for strengthening auditor independence. Schmidt (2019) finds that auditors and professional investors, but not bank directors

[17] As an example of an attempt to increase transparency, the second-tier audit firm Baker Tilly Germany announced that it would develop and introduce a standardized audit fee model to create more transparency (Schmitt, 2019).

and supervisory board members, consider a statutory fee schedule as an appropriate measure for enhancing auditor independence. We are not aware of any evidence of the effects of a statutory fee schedule on auditor competence (perceived or factual) or factual independence. Given the lack of prior research, we rely on our theoretical arguments to hypothesize a positive association between a statutory fee schedule and perceived audit quality, auditor independence, and auditor competence.

H2: When a statutory fee schedule is applied, perceived audit quality is higher compared to the audit firm's internal calculation rates.

H2a: When a statutory fee schedule is applied, perceived auditor independence is higher compared to the audit firm's internal calculation rates.

H2b: When a statutory fee schedule is applied, perceived auditor competence is higher compared to the audit firm's internal calculation rates.

6.3 Research Design

6.3.1 Experimental Case and Task

We used a 3 x 2 between-subjects design to test our hypotheses. We therefore manipulated the business model of the audit firm with respect to the (non-)provision of NAS (*BUSINESS_MODEL*) and the basis for calculating audit fees (*FEE_BASIS*) (for details, see next but one subsection). We follow prior research in designing our experimental material (Gul, 1991; Libby and Kinney, 2000; Kaplan and Mauldin, 2008; Aschauer and Quick, 2018; Quick and Schmidt, 2018). To prevent participants from identifying the research objectives, which might have resulted in biased responses, we provided more information on the fictitious company than prior experiments (e.g., by including information about the client company's management and supervisory board).

Participants responded from their perspective as non-professional investors or bankers. The case was administered in German using an online survey platform.[18]

After the approval of voluntary participation,[19] the case presented a description of a fictitious publicly traded, medium-sized ceramic goods manufacturer called "JETO AG". Across all treatments, participants received the same brief information about the company (business model, employees, labor agreement, composition of management and supervisory board, and compensation of its members). Furthermore, participants received some pre-audit and unpublished key financial figures, including the pre-audit earnings per share (EPS) (€1.16), pre-audit consolidated financial statement, and were informed that stocks of "JETO AG" are listed on the Frankfurt Stock Exchange. In addition, participants were told that the financial analyst forecasted consensus EPS is about €1.15 (and therefore €0.01 below the pre-audit EPS).

The information contains a section about the audit, where we include our first treatment variable (*BUSINESS_MODEL*) and inform participants that the supervisory board of "JETO AG" has engaged a Big 4 audit firm after its election at the annual general meeting.[20] Participants also received information about the total revenue of the audit firm and, if the audit firm provides NAS, which part relates to audit services and which to NAS. Furthermore, participants were informed that the auditor has been engaged for three periods, that the audit firm had always issued an unqualified opinion, and that there have never been disagreements between the auditor and management. The audit fee subsection, in which we manipulate the second treatment variable (*FEE_BASIS*),

[18] To ensure a realistic setting, we used publicly available financial data of an actual company within the same industry as the fictitious case company. Financial data for the engaged audit firm were approximated from average revenue for audit services and NAS of Big 4 audit firms in Germany (we extracted financial data from Big 4 audit firm transparency reports from 2015/2016 to 2017/2018. On average, 18% of the turnover relates to audit services, 82% relates to NAS). We asked two researchers with substantial experience in experimental auditing research whether the case is appropriate for testing our hypotheses. Two public accountants from a Big 4 audit firm provided feedback on whether the case is realistic. Additionally, and to ensure the understandability of the experimental case and the technical functionality of the online survey tool, we pretested the instrument with two bankers and two non-professional investors. As a result, some minor verbal and technical changes were made. An English translation of the original material can be found in the appendix (section 6.6).

[19] The final materials and procedures were approved by the Ethics Committee of the authors' university, and we ensured a high degree of scientific ethics, including high standards and transparency of participant rights and data protection.

[20] We chose a Big 4 audit firm, as the Big 4 dominate the German audit market for audits of PIEs (Audit Analytics, 2020).

informs participants about the audit fee, the underlying calculation basis, and that the fee agreement had been approved by the supervisory board of "JETO AG".

Following this information, the case explained that the auditor discovered a misstatement, which was caused by an excessively optimistic management assessment of the net realizable value of inventories. This information was held constant across all treatments. Participants were informed that the auditor had communicated the revealed misstatement to the company management and that s/he believes that the measurement of inventories is too high, which leads to an overstatement of pre-audit earnings (by €0.06 per share). Furthermore, the complete correction would reduce EPS to €0.05 below the analyst-consensus forecast. Therefore, a situation in which management has an incentive not to correct the discovered misstatement[21], as falling short of the analysts' forecast, could have significant adverse consequences (Huang *et al.*, 2017).[22]

After reading the case material, participants were asked to answer questions regarding the dependent variables. They then completed a comprehension and manipulation check survey, provided some demographic information in a post-experiment questionnaire (see the following two subsections), and could not then return to the case or their assessment.

6.3.2 Dependent Variables

In line with DeAngelo's (1981b) definition of audit quality, we use three dependent variables in this study, namely participant perceptions of audit quality (*QUALITY*), auditor independence (*INDEPENDENCE*), and auditor competence (*COMPETENCE*). We use the same operationalization for all dependent variables as in prior experimental studies (e.g. Libby and Kinney, 2000; Kaplan and Mauldin, 2008; Quick and Schmidt, 2018). To obtain the first dependent variable, participants had to assess the most likely EPS amount "JETO AG" reported in the audited financial statements, by selecting one

[21] As prospect theory (Kahneman and Tversky, 1979) shows, individuals evaluate changes not by the absolute level, but by their positive or negative deviations from a reference point (e.g., analyst forecasts). If the outcome deviates positively from the reference point, a gain is perceived, resulting in a valuation premium. With a negative deviation, a loss is perceived, resulting in a negative valuation (discount).

[22] Such effects could include, e.g., negative stock price reactions (Skinner and Sloan, 2002) or reduced management credibility (Bartov *et al.*, 2002). See Huang *et al.* (2017) for further effects.

of seven amounts ranging from €1.10 (audit difference fully corrected) to €1.16 (audit difference uncorrected). A full correction reflects high audit quality, and no modification indicates low audit quality. For the second (third) dependent variable, participants were asked to assess auditor independence (competence) on a seven-point scale anchored by 1 – low independence (competence) and 7 – high independence (competence).

6.3.3 Treatment Variables, Comprehension and Manipulation Checks, and Demographics

We manipulated the business model of the audit firm (*BUSINESS_MODEL*) regarding the provision of audit services and NAS at three levels: pure audit firm vs. non-provision of NAS to audit clients vs. simultaneous provision of audit services and NAS. Thereby, we explained the business model concerning the extent of audit services and NAS provision. In the case of pure audit firms and non-provision of NAS to audit clients, we mentioned that this business model is unlike that of the audit firm's competitors.[23] Moreover, we also mentioned and defined the term "pure audit firm" for that condition. Our experimental setting refers deliberately to a voluntary non-provision of NAS, as we intended to reflect strategies recently observed in the audit market. We are aware that this setting does not allow us to infer directly the effectiveness of regulatory measures. The basis for calculating audit fees (*FEE_BASIS*) was manipulated at two levels: statutory fee schedule vs. the internal calculation rates of the audit firm. For the condition where a statutory fee schedule was applied, we mentioned the term "statutory fee schedule", and explained that it determines the hourly rates and the number of hours to be estimated for each audit procedure (for details, see the side-by-side comparison in the experimental case (appendix, section 6.6)). This resulted in six

[23] The phrase "unlike its competitors" highlights the voluntary nature of the business model, which might drive participant responses. While it reflects current market strategies (e.g., KPMG UK's decision not to provide any NAS to FTSE 350 audit clients), a potential concern is that the comparison to competitors rather than the actual design of the business model drives investor perceptions. To alleviate this potential concern, we conducted a follow-up experiment in which we compared each "non-provision of NAS" condition (pure audit firm vs. non-provision of NAS to audit clients), including the phrase "unlike its competitors", with the two conditions without the phrase "unlike its competitors". This resulted in four experimental cells. We used non-professional German investors acquired through Prolific, and received 95 usable responses. We find no significant differences throughout all three dependent variables (untabulated). Therefore, we believe that our results are unlikely to be biased by this particular phrase.

different experimental conditions, and participants were randomly assigned to one of them (see Table 2).

To test participants' comprehension of the case and the treatments, we included one comprehension and two manipulation checks. All questions were asked after the participants have assessed the audit quality, auditor independence, and auditor competence. First, we asked the participants to choose the correct answer (yes/no) to the question: "If management fully corrects the misstatement for inventory valuation, EPS will be below the analyst forecast". This question relates to the comprehension of management incentives in order to achieve analyst forecasts. Second, participants indicated whether the audit firm generally provides NAS to its audit clients (yes, within the legal framework; no, it offers only audit services (so-called pure audit firm); no, it offers no NAS to its audit clients). Third, participants were asked on what basis audit fees were calculated (on a statutory fee schedule vs. internal calculation rates of the audit firm). These two questions relate to understanding the treatment variables.

Finally, participants were asked about their age (from a selection of ranges), gender, and educational level. Non-professional investors were also asked whether they hold stocks or not. Furthermore, participants had to self-assess their auditing and financial accounting expertise (on seven-point scales anchored by 1 – no expertise and 7 – very high expertise), and to self-assess their general trust in annual reports prepared by management and in the statutory audit (on seven-point scales anchored by 1 – no trust and 7 – very high trust).

6.3.4 Participants

Participants were bankers and non-professional investors, comprising two significant groups of debt and equity capital providers. We invited participants during spring and summer 2020. To contact bankers, we used a database from the BaFin to identify all registered German banks (1,384)[24]. We then manually collected corporate and retail banker names and email addresses from the bank websites (5,381 contacts) and invited them via email. Non-professional investors were contacted in multiple ways. First, we used the website of the Federal Association of Stock Exchange Associations at German

[24] https://portal.mvp.bafin.de/database/InstInfo/?locale=en_GB.

Universities ("Bundesverband der Börsenvereine an deutschen Hochschulen e.V.") to identify all member associations. We then manually collected the names and email addresses of board members from the association websites (268 contacts) to invite them via email. We also asked them to ask their members to participate. Second, we used Xing (a German career-oriented social networking site) to contact members of the group "finanztreff" (1,104 members as of spring 2020), which is related to "finanztreff.de", an internet-based financial portal focusing on information for non-professional investors. Third, we asked members of two large German investment associations representing non-professional investors, the German association for the protection of shareholders ("Deutsche Schutzvereinigung für Wertpapierbesitz e.V.") and the association for investor protection ("Schutzgemeinschaft der Kapitalanleger e.V."). These associations use magazines to inform their members ("Focus Money" and "AnlegerPlus"), and agreed to include in one issue information about this study and an invitation to participate. To motivate participation, we offered an executive summary of the research outcomes upon request.

Overall, we received 317 usable responses (before the elimination of comprehension and manipulation failures). The response rate for the sample of bankers is about 2.9% (155 replies).[25] For the non-professional investor sample, we cannot provide a response rate. First, we do not know how many members of the Stock Exchange Associations at German Universities were informed by the board members. Second, we do not know how many members of the two investment associations noticed the information on our research project in their magazines. However, we received 162 responses from non-professional investors. To test for non-response bias (Rogelberg and Stanton, 2007), early and late responses were compared by performing several t-tests on the dependent variables. These test results do not indicate any significant differences between the early and late respondents. So that there is no indication of a non-response bias.[26]

We excluded all participants from the non-professional investor sample who do not hold stocks (15 participants). Furthermore, we excluded 21 (of the remaining 302)

[25] Furthermore, we received many responses explaining why they were not able to participate in our study, e.g., due to a lack of time because of the COVID-19 pandemic, or bankers who stated that the bank is a specialized bank and does not grant credits to companies. Therefore, the response rate is much higher than the participation rate.

[26] We divided the sample by the median response into two groups of early and late responses.

participants who did not correctly answer the comprehension check; and a further 99 regarding the first treatment variable (*BUSINESS_MODEL*), and a further 28 regarding the second treatment variable (*FEE_BASIS*) from our analysis, who failed our manipulation checks.[27] This leaves a final sample size of 154 participants. Table 2, Panel A shows the number of participants per experimental condition.

[27] The failure rate for our manipulation checks is comparable to those discussed in prior research on electronic survey methods (e.g., Andrews *et al.*, 2003; Oppenheimer *et al.*, 2009). One reason for the high failure rate could be that we provided a complex experimental case intended to prevent participants from identifying the research objectives. Furthermore, we did not pay the participants. Therefore, the performance of the participant might suffer (Cameron et al., 2001). Finally, our passing rate (51.0%) by far exceeds the random passing rate (8.5%).

Panel A Number of participants per experimental condition

Experimental condition	*BUSINESS_MODEL*	*FEE_BASIS*	Number of participants		
			Group A	Group B	Total
1	Pure audit firm	Statutory fee schedule	12	13	25
2	Pure audit firm	Audit firm's internal calculation rates	12	13	25
3	Non-provision of NAS to audit clients	Statutory fee schedule	13	13	26
4	Non-provision of NAS to audit clients	Audit firm's internal calculation rates	13	13	26
5	Simultaneous provision of audit services and NAS	Statutory fee schedule	11	13	24
6	Simultaneous provision of audit services and NAS	Audit firm's internal calculation rates	14	14	28
Total			75	79	154

Panel B Demographic information

Variable	N	Mean	Frequency				
			1	2	3	4	5
AGE	154	3.0000	27	29	30	53	15
GENDER	154	1.1494	131	23	-	-	-
EDUCATION	154	3.2338	8	37	31	67	11
Variable	N	Mean	SD	Min		Max	Median
EXPERT_AUDIT	154	4.0260	1.680	1		7	4
EXPERT_ACC	154	4.7857	1.508	1		7	5
TRUST_REPORT	154	4.5649	1.283	1		7	5
TRUST_AUDIT	154	4.8961	1.354	1		7	5

Notes: Panel A shows the number of participants per experimental condition. Group A: Non-professional investors; Group B: Bankers.
Panel B shows the demographic information. *AGE*: Age of participant (1 = ≤ 30, 2 = 31-40, 3 = 41-50, 4 = 51-60, 5 = > 60); *GENDER*: Gender of participant (1 = male, 2 = female, 3 = neutral); *EDUCATION*: level of participant's education (1 = High school (without a university entrance qualification), 2 = High school (with a university entrance qualification), 3 = Bachelor's degree, 4 = Diploma/Master's degree, 5 = PhD); *EXPERT_AUDIT*: Self-assessment of auditing expertise on a seven-point Likert-scale (1 – no expertise, 7 – very high expertise); *EXPERT_ACC*: Self-assessment of financial accounting expertise on a seven-point Likert-scale (1 – no expertise, 7 – very high expertise); *TRUST_REPORT*: Self-assessment of trust in annual reports on a seven-point Likert-scale (1 – no trust and 7 – very high trust); *TRUST_AUD*: Self-assessment of trust in statutory audit on a seven-point Likert-scale (1 – no trust and 7 – very high trust).

Table 2: Descriptive statistics

Table 2, Panel B presents the demographic characteristics. Most of the remaining 154 participants are in the age range between 51-60 years (53 participants), following 30 participants between 41-50, and 29 in the range between 31-40 years. Twenty-seven are 30 years old or younger and 15 participants are older than 60. Overall, 131 males and 23 females conducted the study. Regarding the educational level, 67 participants hold a diploma or master's degree, 37 are university entrance high school graduates, 31 have a bachelor's degree, eleven have a PhD, and eight are high school graduates without a university entrance qualification. The self-assessment of auditing expertise

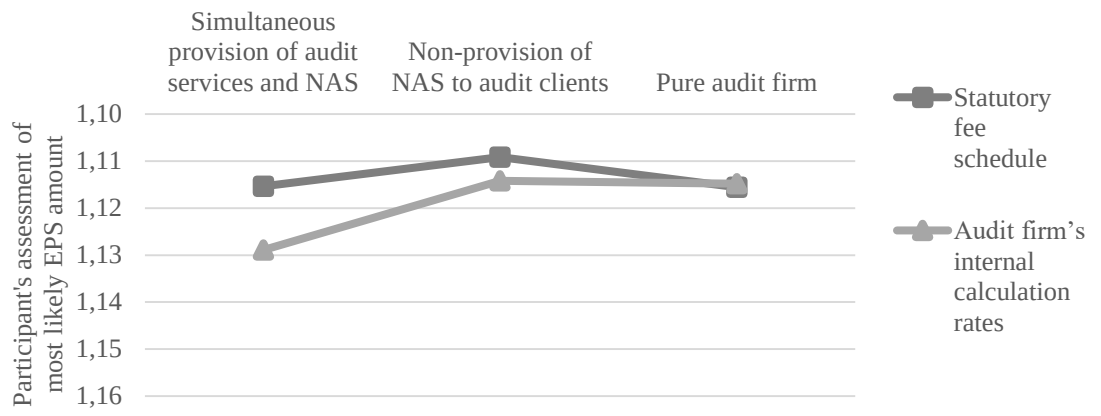
has a mean score of 4.03 (SD 1.680), which is, not surprisingly, lower than the average expertise in financial accounting (mean 4.79, SD 1.508). The mean score for the self-assessment of trust in the statutory audit (mean 4.90, SD 1.354) is higher than for trust in annual reports (mean 4.56, SD 1.283). Therefore, participants appear to have sufficient experience and expertise to understand the experimental material.

6.4 Results

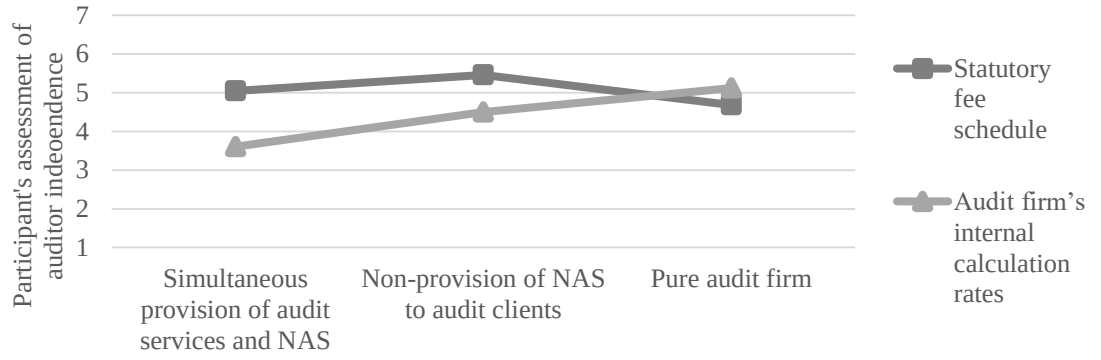
6.4.1 Main Results

To test our hypotheses, we conducted three full-factorial analyses of variance (ANOVAs). Accordingly, we collapsed both subject groups together. Figure 3 depicts the means of all dependent variables by experimental conditions, whereby Table 3 tabulates the respective means and standard deviations.

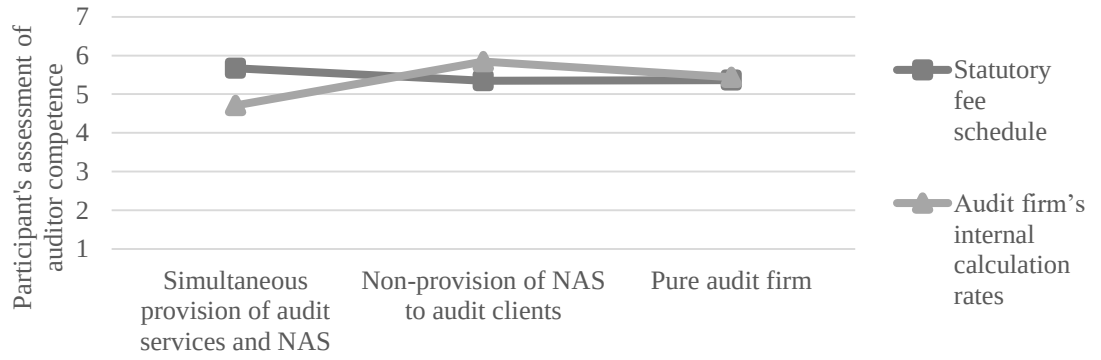
Panel A *QUALITY*



Panel B *INDEPENDENCE*



Panel C *COMPETENCE*



Notes: Panel A: The figure reports estimated marginal means of the participant assessment of audit quality (responses were anchored on €1.10 – very high (all the audit difference corrected) and €1.16 – very low (none of the audit difference corrected) in intervals of €0.01) as the dependent variable and with the *BUSINESS_MODEL* (simultaneous provision of audit services and NAS vs. non-provision of NAS to audit clients vs. pure audit firm) and the *FEE_BASIS* (statutory fee schedule vs. the internal calculation rates of the audit firm) as factors. For reasons of readability, the ordinate for *QUALITY* has been labelled with descending values, in order to show that a high audit quality value (i.e., lower EPS) is further up in the graph.
Panel B: The figure shows the corresponding values for participant assessment of auditor independence (responses were anchored on 1 – low independence and 7 – high independence).
Panel C: The figure reports the corresponding values for participant assessment of auditor competence (responses were anchored on 1 – low competence and 7 – high competence).

Figure 3: Observed effects on *QUALITY*, *INDEPENDENCE* and *COMPETENCE*

Experimental cell	N	*QUALITY*		*INDEPENDENCE*		*COMPETENCE*	
		Mean	SD	Mean	SD	Mean	SD
1	25	€1.1156	0.022	4.6800	1.796	5.3600	1.075
2	25	€1.1148	0.022	5.1200	1.394	5.4400	1.158
3	26	€1.1092	0.017	5.4615	1.303	5.3462	0.797
4	26	€1.1142	0.021	4.5000	1.581	5.8462	0.967
5	24	€1.1154	0.023	5.0417	1.781	5.6667	1.204
6	28	€1.1289	0.024	3.6071	1.792	4.7143	1.536

Notes: The table presents the number of observations (N) and the mean and standard deviation of the dependent variables for each experimental cell. *QUALITY* is the participant assessment of audit quality (responses were anchored on €1.10 – very high and €1.16 – very low). *INDEPENDENCE* is the participant assessment of auditor independence (responses were anchored on 1 – low independence and 7 – high independence). *COMPETENCE* is the participant assessment of auditor competence (responses were anchored on 1 – low competence and 7 – high competence).

Table 3: Means of the dependent variables according to experimental conditions

The first ANOVA tests the effects of our treatments on non-professional investor and banker perceptions of audit quality, proxied by the most likely reported EPS. Note that lower values of the most likely EPS represent higher perceptions of audit quality. Table 4, Panel A presents the descriptive statistics. Concerning the audit firm's business model (*BUSINESS_MODEL*), participants perceive higher audit quality when there is a non-provision of NAS to audit clients (mean = €1.117, SD = 0.019), or a pure audit firm (mean = €1.1152, SD = 0.022) than when audit services and NAS are provided simultaneously (mean = €1.1227, SD = 0.024). Regarding the calculation basis of audit fees (*FEE_BASIS*), participants perceive higher audit quality when audit fees are based on a statutory fee schedule (mean = €1.1133, SD = 0.021) compared to the internal calculation rates of the audit firm (mean = 1.1196, SD = 0.023).

Panel A Descriptive statistics of participant assessment of audit quality for each experimental cell

	Audit firm's internal calculation rates	Statutory fee schedule	Total
Simultaneous provision of audit services and NAS	*N = 28* €1.1289 (0.024)	*N = 24* €1.1154 (0.023)	*N = 52* €1.1227 (0.024)
Non-provision of NAS to audit clients	*N = 26* €1.1142 (0.021)	*N = 26* €1.1092 (0.017)	*N = 52* €1.1117 (0.019)
Pure audit firm	*N = 25* €1.1148 (0.022)	*N = 25* €1.1156 (0.022)	*N = 50* €1.1152 (0.022)
Total	*N = 79* €1.1196 (0.023)	*N = 75* €1.1133 (0.021)	

Panel B Results of ANOVA with participant assessment of audit quality as dependent variable

	Degrees of freedom	Type III sum of squares	F-statistic	p-value
Intercept	1	191.486	407634.606	<0.001
BUSINESS_MODEL	2	0.003	3.117	0.047
FEE_BASIS	1	0.001	2.850	0.093
*BUSINESS_MODEL*FEE_BASIS*	2	0.001	1.405	0.249
Error	148	0.070		
Total	154	192.068		

Panel C Post-hoc tests for the independent variable *BUSINESS_MODEL*

Planned comparison (Scheffé)	p-value
Simultaneous provision of audit services and NAS vs. non-provision of NAS to audit clients	0.039
Simultaneous provision of audit services and NAS vs. pure audit firm	0.221
Non-provision of NAS to audit clients vs. pure audit firm	0.722
Planned comparison (Bonferroni)	p-value
Simultaneous provision of audit services and NAS vs. non-provision of NAS to audit clients	0.033
Simultaneous provision of audit services and NAS vs. pure audit firm	0.249
Non-provision of NAS to audit clients vs. pure audit firm	1.000

Notes: Panel A presents the number of observations (N), and the mean and standard deviation (in parentheses) of the participant assessment of audit quality (responses were anchored on €1.10 – very high and €1.16 – very low) for each experimental cell.
Panel B reports the results of a full-factorial ANOVA with the participant assessment of audit quality as the dependent variable, and the business model (pure audit firm vs. non-provision of NAS to audit clients vs. simultaneous provision of audit services and NAS) and the fee basis (statutory fee schedule vs. internal calculation rates of the audit firm) as factors.
Panel C reports the results from post-hoc tests (Scheffé and Bonferroni) of participant assessment of audit quality between the two cells mentioned in the planned comparison.

Table 4: ANOVA results for the dependent variable *QUALITY*

Table 4, Panel B presents the ANOVA results. The main effect of *BUSINESS_MODEL* is significant (F = 3.117, p = 0.047), supporting *H1*. The results from the ANOVA also reveal a significant difference (F = 2.850, p = 0.093) for *FEE_BASIS*, which is in line with *H2*. The interaction between *BUSINESS_MODEL* and *FEE_BASIS* is not significant (F = 1.405, p = 0.249).[28] Table 4, Panel C shows results from post-hoc mean comparisons for the independent variable *BUSINESS_MODEL*. They reveal significant differences between the simultaneous provision of audit services and NAS, and the non-provision of NAS to audit clients condition (Scheffé p = 0.039, Bonferroni p = 0.033). By contrast, there are no significant differences between the other treatments. Therefore, only the non-provision of NAS to audit clients seems to significantly increase audit quality perceptions, while an audit conducted by a pure audit firm seems to have no significant effect.

Furthermore, we conducted several simple-effects tests comparing the means of all experimental cells (untabulated).[29] We always find significant differences when we compare each condition with the baseline (i.e., when audit services and NAS are provided simultaneously, and audit fees are based on internal calculation rates). By contrast, all other differences are insignificant. To obtain a more comprehensive picture of this pattern, we conduct a contrast analysis for all dependent variables (we discuss the results at the end of this subsection).

The second ANOVA deals with participant assessment of auditor independence. Table 5, Panel A presents the descriptive statistics. The mean value of the assessment of auditor independence is highest when there is a non-provision of NAS to audit clients (mean = 4.9808, SD = 1.515), followed by the pure audit firm (mean = 4.9000, SD = 1.607), and the simultaneous provision of audit services and NAS (mean = 4.2692, SD

[28] We did not discuss any theory or hypothesis regarding a potential interaction, because there is no meaningful theoretical relation between our two independent variables. However, examining them in one experiment could be informative, as both relate to fundamental issues of auditors' state-of-the-art revenue-generation models. Hence, given the feasibility of a 3 x 2-design, the simultaneous study of two possible changes to the revenue generation model alleviates potential problems from studying such means in isolation and would reveal any unexpected interdependencies.

[29] The application of t-tests requires a normal data distribution and assumes equal variances in the two sub-samples. However, the assumption of normality was violated. Therefore, we repeated all t-tests in our analysis using non-parametric Mann-Whitney U-tests, and found similar results.

= 1.911). Furthermore, independence perceptions are also higher when auditors use a statutory fee schedule (mean = 5.0667, SD = 1.647 vs. mean = 4.3797, SD = 1.704).

Panel A Descriptive statistics of participant assessment of auditor independence for each experimental cell

	Audit firm's internal calculation rates	Statutory fee schedule	Total
Simultaneous provision of audit services and NAS	*N = 28* 3.6071 (1.792)	*N = 24* 5.0417 (1.781)	*N = 52* 4.2692 (1.911)
Non-provision of NAS to audit clients	*N = 26* 4.5000 (1.581)	*N = 26* 5.4615 (1.303)	*N = 52* 4.9808 (1.515)
Pure audit firm	*N = 25* 5.1200 (1.394)	*N = 25* 4.6800 (1.796)	*N = 50* 4.9000 (1.607)
Total	*N = 79* 4.3797 (1.704)	*N = 75* 5.0667 (1.647)	

Panel B Results of ANOVA with participant assessment of auditor independence as dependent variable

	Degrees of freedom	Type III sum of squares	F-statistic	p-value
Intercept	1	3444.874	1311.730	<0.001
BUSINESS_MODEL	2	13.217	2.516	0.084
FEE_BASIS	1	16.330	6.218	0.014
*BUSINESS_MODEL*FEE_BASIS*	2	24.059	4.580	0.012
Error	148	388.678		
Total	154	3868.000		

Panel C Post-hoc tests for the independent variable *BUSINESS_MODEL*

Planned comparison (Scheffé)	p-value
Simultaneous provision of audit services and NAS vs. non-provision of NAS to audit clients	0.085
Simultaneous provision of audit services and NAS vs. pure audit firm	0.149
Non-provision of NAS to audit clients vs. pure audit firm	0.969
Planned comparison (Bonferroni)	**p-value**
Simultaneous provision of audit services and NAS vs. non-provision of NAS to audit clients	0.080
Simultaneous provision of audit services and NAS vs. pure audit firm	0.154
Non-provision of NAS to audit clients vs. pure audit firm	1.000

Notes: Panel A presents the number of observations (N), and the mean and standard deviation (in parentheses) of the participant assessment of auditor independence (responses were anchored on 1 – low independence and 7 – high independence) for each experimental cell.
Panel B reports the results of a full-factorial ANOVA with the participant assessment of auditor independence as the dependent variable, and the business model (pure audit firm vs. non-provision of NAS to audit clients vs. simultaneous provision of audit services and NAS) and the fee basis (statutory fee schedule vs. internal calculation rates of the audit firm) as factors.
Panel C reports the results from post-hoc tests (Scheffé and Bonferroni) of participant assessment of auditor independence between the two cells mentioned in the planned comparison.

Table 5: ANOVA results for the dependent variable *INDEPENDENCE*

Panel B of Table 5 presents the ANOVA results, indicating a significant main effect for *BUSINESS_MODEL* (F = 2.516, p = 0.084), providing support for *H1a*. The significant main effect for *FEE_BASIS* (F = 6.218, p = 0.014) suggests that *H2a* can also be confirmed. However, we also find a significant interaction between *BUSINESS_MODEL* and *FEE_BASIS* (F = 4.580, p = 0.012). Participant concerns regarding a threat to auditor independence through the provision of NAS (with the exception of the pure audit firm condition) seem to be compensated for when a statutory fee schedule is applied (see Table 5, Panel A), possibly because adequate audit fees may alleviate perceptions of independence being at risk from providing NAS. Furthermore, in the case of internal calculation rates, independence perceptions increase when auditors provide less NAS. Moreover, as reflected by the significant interaction, in the case of pure audit firms, there is no possible cross-subsidization and thus no threat of audit fees being too low. Therefore, a statutory fee schedule might not be perceived as necessary to strengthen auditor independence. Table 5, Panel C, shows the results from post-hoc tests, which reveal significant differences between the simultaneous provision of audit services and NAS and the non-provision of NAS to audit clients condition (Scheffé p = 0.085, Bonferroni p = 0.080). Again, there are no significant differences between the other treatments. Similar to *QUALITY*, only the non-provision of NAS to audit clients significantly increases independence perceptions, while a pure audit firm seems to have no effect. The (untabulated) follow-up simple effects tests show basically the same pattern of significant differences across conditions as for *QUALITY*.[30]

Our third ANOVA uses non-professional investor and banker perceptions of auditor competence as the dependent variable. Table 6, Panel A presents the descriptive statistics. Again, the highest value of perceived competence can be observed in the case of a non-provision of NAS to audit clients (mean 5.5962, SD = 0.913), followed by the pure audit firm condition (mean = 5.4000, SD = 1.107). The lowest value can be revealed in the case of a simultaneous provision of audit services and NAS (mean = 5.1538, SD = 1.460). For the statutory fee schedule condition, mean perceived auditor

[30] Furthermore, the results from the follow-up simple effects test reveal a significantly negative difference between the pure audit firm + statutory fee schedule and the non-provision of NAS to audit clients + statutory fee schedule condition (10%-level) and a significantly positive difference between the conditions in which there is non-provision of NAS to audit clients + statutory fee schedule vs. the audit firm's internal calculation rates (5%-level).

competence (mean = 5.4533, SD = 1.031) is higher than for the condition when audit fees are based on the internal calculation rates of the audit firm (mean = 5.3165, SD = 1.326).

Panel A Descriptive statistics of participant assessment of auditor competence for each experimental cell

	Audit firm's internal calculation rates	Statutory fee schedule	Total
Simultaneous provision of audit services and NAS	*N = 28* 4.7143 (1.536)	*N = 24* 5.6667 (1.204)	*N = 52* 5.1538 (1.460)
Non-provision of NAS to audit clients	*N = 26* 5.8462 (0.967)	*N = 26* 5.3462 (0.797)	*N = 52* 5.5962 (0.913)
Pure audit firm	*N = 25* 5.4400 (1.158)	*N = 25* 5.3600 (1.075)	*N = 50* 5.4000 (1.107)
Total	*N = 79* 5.3165 (1.326)	*N = 75* 5.4533 (1.031)	

Panel B Results of ANOVA with participant assessment of auditor competence as dependent variable

	Degrees of freedom	Type III sum of squares	F-statistic	p-value
Intercept	1	4472.940	3373.450	<0.001
BUSINESS_MODEL	2	4.267	1.609	0.204
FEE_BASIS	1	0.592	0.446	0.505
*BUSINESS_MODEL*FEE_BASIS*	2	14.450	5.449	0.005
Error	148	196.237		
Total	154	4679.000		

Panel C Post-hoc tests for the independent variable *BUSINESS_MODEL*

Planned comparison (Scheffé)	p-value
Simultaneous provision of audit services and NAS vs. non-provision of NAS to audit clients	0.151
Simultaneous provision of audit services and NAS vs. pure audit firm	0.560
Non-provision of NAS to audit clients vs. pure audit firm	0.691
Planned comparison (Bonferroni)	p-value
Simultaneous provision of audit services and NAS vs. non-provision of NAS to audit clients	0.156
Simultaneous provision of audit services and NAS vs. pure audit firm	0.847
Non-provision of NAS to audit clients vs. pure audit firm	1.000

Notes: Panel A presents the number of observations (N), and the mean and standard deviation (in parentheses) of the participant assessment of auditor competence (responses were anchored on 1 – low competence and 7 – high competence) for each experimental cell.
Panel B reports the results of a full-factorial ANOVA with the participant assessment of auditor competence as the dependent variable, and the business model (pure audit firm vs. non-provision of NAS to audit clients vs. simultaneous provision of audit services and NAS) and the fee basis (statutory fee schedule vs. internal calculation rates of the audit firm) as factors.
Panel C reports the results from post-hoc tests (Scheffé and Bonferroni) of participant assessment of auditor competence between the two cells mentioned in the planned comparison.

Table 6: ANOVA results for the dependent variable *COMPETENCE*

Table 6, Panel B shows the results of ANOVA. *H1b* predicts no effect on perceived competence when there is a full ban of NAS. By contrast, the means suggest that participant assessment of auditor competence is higher for the two non-provision of NAS conditions than for the condition where audit services and NAS are provided simultaneously. However, we do not find a significant main effect for *BUSINESS_MODEL* ($F = 1.609$, $p = 0.204$). Therefore, we cannot reject *H1b*. The main effect of *FEE_BASIS*, is also insignificant ($F = 0.446$, $p = 0.505$). Hence, we cannot accept *H2b*. In addition, we find a significant interaction between *BUSINESS_MODEL* and *FEE_BASIS* ($F = 5.449$, $p = 0.005$). If the auditor does not provide any NAS at all, participants might not perceive a threat of negative consequences on competence through insufficient audit fees. Therefore, a statutory fee schedule does not seem necessary to ensure adequate audit fees in this setting. By contrast, if audit services and NAS are provided simultaneously, a statutory fee schedule ensuring adequate audit fees does increase perceptions of competence. Table 6, Panel C shows the post-hoc test results regarding *BUSINESS_MODEL*. In line with our results for the main effect, both tests (Scheffé and Bonferroni) reveal no significant differences throughout all treatments. However, the pattern of significant differences in the follow-up simple effects tests (untabulated) across the conditions is similar to that observed in the two other dependent variables.[31]

As mentioned above, the results of our simple-effects tests for all dependent variables indicate that the condition in which the audit firm provides NAS and audit fees are based on internal calculation rates (which is the baseline) is always significantly different from all other experimental cells. To obtain a more comprehensive picture of these findings, we conducted a contrast test using [+1, +1, +1, +1, +1, -5] contrast weighting (Buckless and Ravenscroft, 1990). We thereby compared the means for the baseline condition with all five other conditions. The results (untabulated) reveal a highly significant difference throughout all dependent variables. Therefore, implementing one measure (either a non-provision of NAS or applying a statutory fee

[31] Furthermore, the results from the follow-up simple effects test reveal a significantly negative difference between the pure audit firm + statutory fee schedule and the non-provision of NAS to audit clients + audit firm's internal calculation rates condition (10%-level), and a significantly negative difference between the conditions in which there is non-provision of NAS to audit clients + statutory fee schedule vs. the audit firm's internal calculation rates (5%-level).

schedule) may positively affect perceptions of audit quality, auditor independence, and auditor competence. However, the combination of both measures seems to have no incremental effect.

6.4.2 Additional Analyses

To further explore our results, we conduct two additional analyses. First, we repeat the full-factorial ANOVAs for our dependent variables with all 317 usable responses (including those that failed our comprehension and manipulation checks and those non-professional investors who do not hold stocks).[32] The inferences (untabulated results) remain basically the same, whereby the interaction effect on auditor competence becomes insignificant.

Second, we analyze the differences between our two subject groups, conducting separate ANOVAs. Regarding audit quality perceptions, the results (untabulated) for *BUSINESS_MODEL* seem to be driven predominantly by non-professional investors, whereby the results for *FEE_BASIS* appear to be driven by bankers. Moreover, non-professional investors especially, seem to appreciate a non-provision of NAS and a statutory fee schedule regarding auditor independence. However, not all main effects remain significant, which could be due to the smaller cell sizes and perception differences. A reason for such different perceptions might lie in differences in the auditing expertise of the participants. Prior research has shown that the lower the subject's auditing expertise, the more negatively the simultaneous provision of audit services and NAS is perceived (van Liempd *et al.*, 2019). Bankers probably have more expertise and recognize this. Therefore, the effect of non-provision of NAS could be stronger for non-professional investors. Additionally, bankers might also be more able to recognize the relationship between audit fees and audit quality than non-professional investors, and in particular, identify potential threats to audit quality caused by audit fees that are too low. This could explain why bankers appreciate a statutory fee schedule more than non-professional investors. They are typically more familiar with fee schedules, as auditors of cooperatives and cooperative banks and saving banks use fee schedules to calculate the level of audit fees (see Footnote 13). To support these arguments, we analyze differences in the self-assessment of expertise in auditing. We find that bankers have more expertise in auditing (mean = 4.2152) compared to non-

[32] This approach is suggested by, among others, Aronow *et al.* (2019) and Shamon and Berning (2020).

professional investors (mean = 3.8267). Furthermore, this difference is significant (p = 0.077; one-tailed t-test).

Panel A Non-professional investors

Experimental Condition	N	*QUALITY*		*INDEPENDENCE*		*COMPETENCE*	
		Mean	SD	Mean	SD	Mean	SD
Simultaneous provision of audit services and NAS	25	€1.1208	0.022	4.0000	1.979	5.3200	1.464
Non-provision of NAS to audit clients	26	€1.1115	0.017	5.0769	1.647	5.7308	0.778
Pure audit firm	24	€1.1117	0.022	5.3750	1.408	5.7917	0.833
Audit firm's internal calculation rates	39	€1.1156	0.021	4.2308	1.842	5.5641	1.273
Statutory fee schedule	36	€1.1136	0.020	5.4444	1.482	5.6667	0.828

Panel B Bankers

Experimental Condition	N	*QUALITY*		*INDEPENDENCE*		*COMPETENCE*	
		Mean	SD	Mean	SD	Mean	SD
Simultaneous provision of audit services and NAS	27	€1.1244	0.027	4.5185	1.847	5.0000	1.468
Non-provision of NAS to audit clients	26	€1.1119	0.021	4.8846	1.395	5.4615	1.029
Pure audit firm	26	€1.1185	0.022	4.4615	1.679	5.0385	1.216
Audit firm's internal calculation rates	40	€1.1235	0.025	4.5250	1.569	5.0750	1.347
Statutory fee schedule	39	€1.1131	0.022	4.7179	1.731	5.2564	1.163

Notes: Panel A presents the cell size (N), means and standard deviations (SD) of the dependent variables according to the experimental conditions for non-professional investors. *QUALITY* is the participant assessment of audit quality (responses were anchored on €1.10 – very high and €1.16 – very low). *INDEPENDENCE* is the participant assessment of auditor independence (responses were anchored on 1 – low independence and 7 – high independence). *COMPETENCE* is the participant assessment of auditor competence (responses were anchored on 1 – low competence and 7 – high competence).
Panel B reports the corresponding results for bankers.

Table 7: Means of the dependent variables according to experimental conditions and subject groups

Table 7 shows the means and standard deviations of the three dependent variables for the experimental conditions, separately for non-professional investors (Panel A) and bankers (Panel B). Overall, the results reveal that the means are higher throughout all dependent variables and subject groups in cases of a non-provision of NAS (either non-provision of NAS to audit clients or a pure audit firm) and consistently higher if a statutory fee schedule is applied. Generally, non-professional investors' means are mostly higher than those of bankers, suggesting that probably, better-informed stakeholder groups tend to have a more critical perception of audit quality, auditor independence, and auditor competence. Untabulated t-test results reveal that non-

professional investors, but not the bankers, perceive the two non-provision of NAS conditions as significantly better than the simultaneous provision of audit services and NAS throughout all three dependent variables. Bankers perceive *QUALITY*, and non-professional investors *INDEPENDENCE* as significantly higher when a statutory fee schedule is applied.

6.5 Conclusion

Accounting scandals (e.g., recently Carillion in the UK or Wirecard in Germany) are usually followed by calls for instruments to strengthen the audit quality perceptions of financial statements users. A regularly raised and fundamental critical point is how audit firms generate their revenue (e.g., the range of services offered and the amount of fees received) and the resulting potentially adverse effects on audit quality. Therefore, this study experimentally investigates how a non-provision of of NAS (either by pure audit firms or non-provision of NAS to audit clients) and a statutory fee schedule impact on banker and non-professional investor perceptions of audit quality.

Theoretically, there is a negative effect on perceived auditor independence if audit services and NAS are provided simultaneously, mainly because of the economic bond that develops between the auditor and the client. However, the auditor can transfer and apply client-specific knowledge spillovers from consulting activities that may increase her/his competence. Hence, the net effect on perceived audit quality remains unclear. If there is a non-provision of NAS, the effects might be contrary. Furthermore, the intense focus on auditing activities and learning effects through NAS provision to non-audit clients should compensate for potential competence threats through the loss of knowledge spillovers. Moreover, the strong positive impact on perceived auditor independence should outweigh possible adverse effects on perceived competence. Therefore, a positive net effect on perceived audit quality is expected. Furthermore, a statutory fee schedule might improve auditor independence and competence, as it counteracts potential low-balling practices and downside fee pressure. Therefore we expect a positive net effect on perceived audit quality.

Our results confirm that a non-provision of NAS has a significant positive effect on banker and non-professional investor perceptions of audit quality and auditor

independence, although the effect on auditor competence is not significant. Moreover, the most decisive intervention, i.e., the creation of pure audit firms, seems unnecessary, as perceived quality (independence/competence) improvements are lower than in the condition of non-provision of NAS to audit clients on average, and post-hoc tests reveal no significant differences compared to a simultaneous provision of audit services and NAS. Furthermore, we find evidence that a statutory fee schedule significantly increases perceptions of audit quality and auditor independence, but not of competence. Moreover, additional tests reveal that adding one measure (either a non-provision of NAS or applying a statutory fee schedule) may positively affect perceptions of audit quality, auditor independence, and auditor competence. However, the combination of both measures seems to have no incremental effect.

Our study contributes to the current debate, following recent accounting scandals, on potential measures for increasing audit quality. We first show that voluntary self-restraint regarding the provision of NAS, and a statutory fee schedule are positively reflected in quality perceptions. Therefore, we provide a new perspective on a traditional research area with ambiguous results, by providing insights from two major stakeholder groups. Moreover, our results may be informative for regulators considering or introducing similar regulations, since regulatory initiatives could have comparable effects. Finally, our results contribute to the overall discussion on further measures to increase audit quality, and the academic discussion about the related advantages and disadvantages. Hence, our findings are of practical relevance for regulators, auditors, members of audit committees, and users of financial statements.

Our study is subject to several limitations. First, the participants were bankers and non-professional investors in Germany. Therefore, we cannot guarantee that the results are also valid for other countries and stakeholders. The effects of the statutory fee schedule could be driven especially by the fact that statutory fee schedules are typical for comparable professions in Germany. Therefore, findings from other countries might differ. However, the theory behind these effects neither relies on familiarity nor cultural or setting-specific prerequisites, so it is likely that the findings are generalizable. The fact that statutory fee schedules are well known from comparable professions in the German setting makes it a particularly appealing laboratory for our experiment. Second, our experimental setting refers to a voluntary non-provision of NAS. Therefore, from

our results, we cannot directly infer of the effects a non-provision mandated by regulators. Third, our theoretical assumptions with respect to the statutory fee schedule and auditor's revenue-generation model are reduced only to audit services, as we did not include the underlying calculation basis of NAS. There might also be an effect if a statutory fee schedule were applied for NAS. Fourth, to capture the current regulatory setting in the EU (that is, a fee cap on NAS and a blacklist of prohibited NAS) in the experimental condition with a joint provision of audit services and NAS, we informed participants that the NAS provision takes place in line with the current legal framework. However, we cannot completely exclude less knowledgeable participants being unfamiliar with the current EU requirements, which could lead to biased results. Fifth, around 50% of the participants failed the comprehension and manipulation checks. However, it is important to note that we did not pay the participants. Therefore, the performance of the participant might have suffered (Cameron *et al.*, 2001), which could explain the high failure rate. Additionally, and even though there is no indication that our results are affected by any non-response bias, we cannot guarantee that our results hold for non-participants. Lastly, our scenario does not capture all factors of a real-life setting. Therefore, perceptions might vary for example, if the company were from another industry or the economic situation were different.

These limitations offer various opportunities for further research. It would be interesting to see how these measures would be evaluated by participants from other countries and other participant groups (e.g., supervisory board members, institutional investors, or financial analysts). Future research could also analyze the effect of our proposed measures by using a setting in which there is explicit information about a cap on NAS fees and a blacklist of prohibited NAS or explore the underlying rationale for the participants' responses. It would be useful to study why certain participants did or did not perceive a given measure as improving audit quality and its components.

6.6 Appendix

Experimental Case

General and business situation

"JETO AG" is a medium-sized ceramic goods manufacturer with headquarters in Germany. The business model is divided into the areas "Bathroom and Wellness" and "Tableware". The company has 8,000 employees and the current labour agreement will end on November 30, 2020.

The Management Board of "JETO AG" consists of four members. They receive a fixed basic salary and some fringe benefits like cars. In addition, the Supervisory Board determines annually, in December, a performance-related compensation based on existing contracts. The Supervisory Board consists of 13 members, six of them representing employees. All members receive a fixed payment at year-end and reimbursement for expenses. The members of the Management Board and Supervisory Board possess the necessary professional and personal capabilities.

In the last three financial years, the business of "JETO AG" has been very successful. For the current financial year, the company preliminarily reports the following pre-audit and unpublished balance sheet information for its consolidated financial statement according to the International Financial Reporting Standards (IFRS).

Key financial figures	
Revenue	€ 837 million
Earnings before interest and taxes (EBIT)	€ 50 million
Comprehensive income	€ 30 million
Cashflow from operations	€ 41 million

With the number of "JETO AG" outstanding stocks, the following provisionally pre-audited earnings per share results:

Earnings per share (preliminary, pre-audited): €1.16

Consolidated financial statement	**12/31**		**12/31**
	€ 688 million		**€ 688 million**
Non-current assets	**€ 269 million**	**Equity**	**€ 195 million**
Intangible assets	€ 38 million	Issued capital	€ 77 million
Property, plant and equipment	€ 165 million	Capital reserve	€ 105 million
Other financial assets	€ 15 million	Retained earnings	€ 13 million
Other non-current assets	€ 14 million		
Deferred tax liabilities and deferred tax assets	€ 37 million	**Liabilities**	
		Non-current liabilities	**€ 274 million**
Current assets	**€ 419 million**	Pension provisions	€ 204 million
Inventories	€ 155 million	Other non-current provisions	€ 11 million
Trade receivables	€ 127 million	Non-current financial liabilities	€ 50 million
Other current assets	€ 28 million	Other non-current liabilities	€ 9 million
Cash and cash equivalents	€ 109 million		
		Current liablities	**€ 219 million**
		Other current provisions	€ 35 million
		Trade payables	€ 84 million
		Other current liabilities	€ 100 million

Analyst forecast

Stocks of "JETO AG" are listed on Frankfurt Stock Exchange, where the company has been listed in the "Prime Standard" for eight years. Financial analysts have always followed business developments with great interest. In the run-up to the publication of the figures for the current financial year, the financial analysts' expected earnings per share forecast for "JETO AG" is (consensus estimate):

Forecasted earnings per share: €1.15

Auditor

"AUDITING audit firm" was appointed to audit the consolidated financial statements. It is one of the four major auditing companies in the German audit market ("Big 4") and was appointed by the Supervisory Board of "JETO AG" after an election at the annual general meeting.

(i)	**(ii)**	**(iii)**
"AUDITING audit firm" **only offers audit services (so-called "pure audit firm"). Unlike its competitors, non-audit services (such as other assurance services, tax advisory services, or other management consulting services) are not part of the services offered by "AUDITING audit firm" (i.e. they are not provided to non-audit clients either).** In the last financial year, "AUDITING audit firm" achieved total revenue of €295 million.	"AUDITING audit firm" **offers audit services, as well as non-audit services (such as other confirmation services, tax consulting services, or other management consulting services). Unlike its competitors, it is part of the business policy of "AUDITING audit firm" not to provide these non-audit services to its audit clients.** In the last financial year, "AUDITING audit firm" achieved total revenue of **€1,625 million. Of this, around €295 million was from audit services, and €1,330 million from non-audit services.**	"AUDITING audit firm" **provides audit services, as well as non-audit services (such as other assurance services, tax advisory services, or other management consulting services). It generally provides these non-audit services also to its audit clients (within the legal framework).** In the last financial year, "AUDITING audit firm" achieved total revenue of **€1,625 million. Of this, around €295 million was from audit services, and €1,330 million from non-audit services.**

The audit of the consolidated financial statements is subject to the International Financial Reporting Standards (IFRS), the German Accounting Standards (DRS), the accounting standards of the German Commercial Code (HGB), the national auditing standards of the German Institute of Auditors (IDW), and the international auditing standards (ISA) of the International Federation of Accountants (IFAC).

For the last three financial years, "AUDITING audit firm" is responsible for the statutory audit and has always issued an unqualified audit opinion. To date, there have also been no disagreements between the auditor and the management of "JETO AG" concerning accounting principles, the annual financial statements, the scope of the audit, or the type of audit procedures.

Audit fees

For the audit of the consolidated financial statements of "JETO AG", a flat fee of €400 thousand was set, which is comparable to the fees for the previous year's audits.

(i)

The fee is based on **a statutory fee schedule, which determines both the amount of the hourly rates and the number of hours to be estimated for each audit procedure.**

(ii)

The fee is based on **the internal calculation rates of "AUDITING audit firm".**

The fee agreement was approved accordingly by the supervisory board of "JETO AG".

Audit differences

Within the scope of the consolidated financial statement audit, the auditor revealed one material audit difference, which he communicated informally to the company's management. The difference is due to management's excessively optimistic management assessment of the net realizable value of inventories. The auditor believes that the inventory measurement is too high and overstates pre-audit earnings per share by €0.06. The extent of the audit difference is €1.6 million.

Chapter 7: The Anticipation of Mandatory Audit Firm Rotation and Audit Quality

Abstract:

Researchers and regulators regularly debate whether mandatory audit firm rotation affects audit quality. Theoretically, rotation might improve auditor independence but impair competence. In 2014, the European Commission mandated audit firm rotation for public-interest entities, starting from 2020 for non-financial firms. However, any auditor change in the transition period could already be interpreted in light of the upcoming mandatory rotation regime, consistent with anecdotal evidence on such interpretations. These changes provide a unique setting, because auditors have strong incentives to build a reputation for high-quality audits when choosing to participate in the market for rotations during the transition period. Using a balanced panel of 287 German firms and data from 2014 through 2019, we hypothesize and find lower discretionary accruals, abnormal working capital accruals, and total accruals in the first year after rotation. This effect is restricted to smaller public companies.

Publication:
Friedrich, C., Pappert, N. and Quick, R. (2023), "The Anticipation of Mandatory Audit Firm Rotation and Audit Quality", *Journal of International Accounting Research*, (forthcoming).

Conferences and Workshops:
- 8th EIASM Workshop on Audit Quality 2020, Bocconi University, online
- 2021 Annual Congress, European Accounting Association, online
- The Eighth International Conference of the Journal of International Accounting Research (JIAR), American Accounting Association, online

Chapter 8: Similarities and “Boilerplates” in the Key Audit Matters Disclosures in the Auditor’s Report of DAX-30 Companies

Abstract (official translation):

The EU audit reform entailed a substantial revision of the auditor’s report for statutory audits of public interest entities. Its goal was to improve the report’s information content and, hence, the transparency of the audit. As a major change, it introduced a key audit matter disclosure to increase the scope, meaningfulness, and individuality of auditor’s reports. Three reporting periods after its introduction, the present study investigates textual similarities and “boilerplates” in the key audit matter reporting practice in the auditor’s reports of DAX-30 companies. The results suggest that, despite increasing audit client-individual reporting, auditors often use similar formulations. The textual similarity is particularly high for consecutive reports of the same auditor, client, and key audit matter topic.

Publication:
Quick, R., Pappert, N., Friedrich, C. and Carlé, T. (2021), “Ähnlichkeiten und „Boilerplates“ in der Berichterstattung über Key Audit Matters in den Bestätigungsvermerken der DAX-30-Unternehmen”, *Betriebswirtschaftliche Forschung und Praxis*, Vol. 73 No. 5, pp. 461–478.

Chapter 9: Text Similarity, Boilerplates and their Determinants in the Key Audit Matters Disclosure

Abstract:

Like the European Commission, many regulators and standard setters worldwide have substantially revised the requirements for auditor's reports on statutory audits of public interest entities. Their objective was to improve the report's information content and, hence, the transparency of the audit. A significant change was the introduction of a key audit matters (KAM) disclosure which increased the scope, meaningfulness, and individuality of auditor's reports. However, critics fear that auditors could use similar or standard formulations (i.e., boilerplate reporting) and not really increase the information value of the auditor's report. Therefore, this study investigates text similarities in KAM disclosure practice in the auditor's reports of German HDAX-companies between 2017 and 2019. The results suggest that auditors often use similar formulations when disclosing a KAM on the same issue at the client level in consecutive years. We further find that the similarity rate is significantly negatively correlated to an audit firm change, and positively correlated to client firms which have a stable financial position measured by a high portion of equity.

A revised version of this working paper has been published as:
Carlé, T., Pappert, N. and Quick, R. (2023), "Text similarity, boilerplates and their determinants in key audit matters disclosure", *Corporate Ownership and Control*, Vol. 20 No. 2, pp. 49–62.

Conferences and Workshops:
- 9th EIASM Workshop on Audit Quality 2022, Università Cattolica del Sacro Cuore, Milan

9.1 Introduction

The auditor's report is the primary communication tool of the auditor for informing external stakeholders about the outcome of the audit. However, historically, the auditor's report has been frequently criticized for being uninformative, standardized ("pass-or-fail"), containing little firm-specific information, and using generic language (i.e., boilerplate reporting) (Seebeck and Kaya, 2022; Lennox *et al.*, 2022). Furthermore, firms usually receive an unqualified opinion (Lennox, 2005), making it difficult for external stakeholders to compare the outcome with audits of other companies. The low information value of the auditor's report resulted in an information gap with adverse effects on the expectation gap, as addressees were not informed appropriately about the audit and audited financial statements. Improved and adequate auditor reporting can contribute to reducing these gaps. Therefore, regulators and standard-setters worldwide, including the FRC, the EC, the PCAOB, and the IAASB, have commenced reforms to expand the auditor's report by including more and extensive reporting elements. The most important change is including information about the most significant assessed risks of material misstatement (including those due to fraud) in the audit of the financial statements of the current period (i.e., the reporting of KAMs). Other examples of new elements in the auditor's report include disclosures about the appointment and auditor tenure, or a declaration of independence (Regulation (EU) No. 537/2014), as well as a description of management and auditor responsibilities (International Standard on Auditing (ISA 700).

However, the effectiveness of the auditor's report reform must be critically scrutinized, and the reporting quality monitored. Auditors may be discouraged from overly offensive and individual reporting, due to potential liability risks and may thus resort to innocuous standard formulations that are not legally contestable (Brasel *et al.*, 2016). Moreover, critics fear that standard texts, text modules (i.e., boilerplates), and restrained or even "one-size-fits-all" reporting will again become established over time (Gray *et al.*, 2011; Norris, 2014; Zeng *et al.*, 2021), limiting the intended increase in information value and thus the relevance of the expanded auditor's report for the addressees. For them, it is impossible to assess whether the risk of material misstatement did not change or the auditor just applies boilerplate reporting. By contrast, despite the disadvantages mentioned above, using standard texts could

increase the readability of the disclosed information by improving the comparability for addressees (Schlüter and Ratzinger-Sakel, 2021). Moreover, changing the KAM without new information may even introduce noise to the auditor's report.

Prior research has focused on whether the reporting of KAMs is relevant for decision-making or valuable for the addressees. However, usefulness requires, amongst other things, that the information provided be new, and the novelty of KAM reporting elements and potential determinants have not yet been empirically investigated for consecutive KAMs on the same issue at a client level. Against this background, this study analyzes whether the fears concerning possible text similarities and boilerplate reporting are justified. For this purpose, we use a similarity measure derived from linguistics, namely the Levenshtein distance (Levenshtein, 1966).

First, we use textual analysis to investigate whether there are text similarities between KAMs on the same issue, reported by the same auditor in different periods at a client level. We therefore analyze the KAM reporting of German HDAX firms from 2017 to 2019 and conduct pairwise comparisons. Second, we repeat the analysis by splitting the sample into an auditor change and non-change condition, to analyze the effect of an auditor change. Third, we examine potential determinants of text similarities in a panel of 99 German PIEs from 2017 to 2019 (297 auditor's reports). We use the similarity rate of the same KAM issues at a client level and add typical independent variables from prior archival studies on KAM reporting, as potential determinants of text similarity (i.e., the use of boilerplate reporting). We select variables related to client size and visibility, client financial position, client corporate governance strength, and the auditor tenure.

Regarding our first analysis, the results show that the similarity rate between KAMs on the same issue, reported by the same auditor, in consecutive periods at the client level is around 0.8, suggesting that there is only minor variation in the wording. The similarity rate varies slightly between Big 4 auditors and is higher for non-Big 4 auditors. By contrast, the similarity rate declines to 0.27 after an auditor change. Our multivariate analysis results prove this, as the change of the audit firm has a significantly negative effect on the text similarity. By contrast, a high proportion of equity favors the use of boilerplates. However, other factors related to the client's

financial position, size and visibility, corporate governance strength, or the auditor's tenure, do not affect text similarity.

We analyze whether boilerplate reporting is still observable despite the extension of the auditor's report. By so doing, we contribute to general linguistics research in accounting in a broader sense, as well as to the research on linguistic characteristics of extended auditor's reports in the narrower sense (e.g., Seebeck and Kaya, 2022; Smith, 2021; Lennox *et al.*, 2022; Zeng *et al.*, 2021). With our research on linguistic characteristics of extended auditor's reports, we follow a call from Bédard *et al.* (2016), who encourage analyzing how KAMs are worded. Moreover, we contribute to the literature that focuses on the quality of expanded auditor's reports and the novelty of the reported information. Thus, we close an important research gap by analyzing the novelty of consecutive KAM disclosures and potential determinants at a client level. Furthermore, since many previous studies have found no effect of KAM disclosure on investor behavior, our findings provide a possible explanation. Due to similar formulations, the information provided is not really new and, therefore, may no longer be relevant for decision-making. Finally, we also contribute to the overall and growing literature on expanded auditor's reports.

The study results thus provide important insights, not only for regulators or standard setters, concerning the effectiveness of the initiated extensions of the auditor's report. They also have implications for other jurisdictions considering the implementation of a similar regulation. The results are also of interest to the auditing profession. For them, it is essential to question current reporting practices critically. Moreover, the results may also give members of audit committees an incentive to monitor the auditor's reporting behavior. Finally, the results might also be of interest to capital providers, in that the novelty of KAM information is low when the same auditor discloses a KAM on the same issue at a client level.

The remainder of this paper is organized as follows. The following section describes the institutional background, reviews the literature, and develops our research questions and hypotheses. Section 9.3 describes the methodology, including the sample, measuring the text similarity, the regression model, and the variables. Section 9.4

presents our empirical results from the textual and regression analyses. Section 9.5 concludes and summarizes the main findings.

9.2 Institutional Background, Prior Research, and Development of Hypotheses

9.2.1 Institutional Background

In the wake of the global financial and economic crisis, regulators and standard setters have increased reporting requirements for auditors worldwide. Examples include the EU, the FRC, the IAASB, and the PCAOB. They released revised auditor reporting standards, which require auditors to increase transparency about the audit, and the information value of the auditor's report for financial statement users by disclosing useful client-specific information. The reform includes reporting and describing the risks of material misstatement (including those due to fraud) that are judged to be significant (i.e., KAMs) and summarizing the auditor's response to them. Furthermore, the auditor has to present significant findings concerning these risks (Article 10, Regulation (EU) No. 537/2014).

For the EU, the key regulations for reforming the auditor's report are included in Regulation (EU) No. 537/2014 on specific requirements for the statutory audit of PIEs, which came into force directly in all EU Member States on June 17, 2016, and Directive 2014/56/EU. Therefore, KAMs had to be reported in the auditor's reports of PIEs for the first time, for audits relating to the 2017 financial year. The particularities of KAM reporting are specified in national and international auditing standards, such as the ISA 701 "Communicating Key Audit Matters in the Independent Auditor's Report" issued by the IAASB.[33]

The standard requires auditors to report those matters that, in the auditor's professional judgement, were of most significance in the audit of financial statements for the current period. KAMs are determined from matters communicated with those charged with governance. (ISA 701.8). Therefore, the auditor has to select matters that require significant attention in performing the audit, by considering areas with a higher

[33] For Germany, the Auditing Standard 401 on "Disclosure of Particularly Significant Audit Matters in the Auditor's Report" issued by the IDW implements the ISA 701 by taking into account Regulation (EU) No. 537/2014 and German legal peculiarities.

assessed risk of material misstatement and significant auditor judgments. These relate to areas in the financial statements that involve significant management judgment, including accounting estimates with high uncertainty. The auditor should also consider the effect on the audit of significant events or transactions that occurred during the period (ISA 701.9). From those, the auditor must finally determine which are the most significant, and therefore, are KAMs (ISA 701.10). The KAM reporting has to be presented in a separate section of the auditor's report under the heading "Key Audit Matters" including an appropriate subheading for each KAM (ISA 701.11). The auditor has to describe why the particular KAM was considered and how it was addressed in the audit (ISA 701.13).

9.2.2 Prior Research

There is a growing stream of research focusing on KAM reporting. Experimental studies were conducted before mandatory reporting, and archival studies have increasingly supplemented these since it became mandatory in different jurisdictions. Most studies investigate whether the expanded auditor's report fundamentally affects the behavior or perceptions of investors or capital markets (e.g., stock price reactions), auditors (e.g., audit fees), auditor liability, and the management of audited clients. This research is relevant to our study, because examining the information value or its limitation through text similarity and boilerplate reporting is both theoretically and practically relevant, regardless of whether or not KAM reporting significantly impacts relevant stakeholders. If not, boilerplate reporting could be a possible explanation.

Experimental studies reveal significant effects on investor behavior, suggesting a positive effect of KAM reporting. Examples are Christensen *et al.* (2014) and Köhler *et al.* (2020) in cases of adjustments of investment decisions or perceptions of firm values, Moroney *et al.* (2021) for an improved perception of the value of the audit and the credibility of the auditor, or Kachelmeier *et al.* (2020) who reveal that experimental participants have less confidence in accounts being identified as KAM. However, there are also some experimental studies finding no significant effects (e.g., Boolaky and Quick (2016) for bank directors, or Köhler *et al.* (2020) and Coram and Wang (2021) for non-professional investors). Concerning the impact of KAM reporting on audit quality, experimental studies find mixed results, e.g., less aggressive financial

accounting behavior (Gold *et al.*, 2020), less skeptical auditor judgment (Ratzinger-Sakel and Theis, 2019), or no impact on auditor judgment (Asbahr and Ruhnke, 2019). Finally, there are also experimental studies suggesting that KAM reporting alters auditor litigation risk, again with mixed results (e.g., Brasel *et al.* (2016) find a general reduction of the liability risk, and Vinson *et al.* (2019) reveal an increase in the perceived level of auditor negligence when a previously reported KAM is not reported in the subsequent year).

Archival Studies only partially find impacts of KAM reporting on investor behavior. For example, Gutierrez *et al.* (2018) and Bédard *et al.* (2019) analyze capital market reactions and fail to find any effects of KAMs. By contrast, Reid *et al.* (2019) show higher earnings response coefficients which measure how strongly investors react to financial statement information. Moreover, Porumb *et al.* (2021) find, for a sample of UK firms, that the expanded auditor's report is associated with reduced loan spread and longer maturity for loan facilities of adopting firms relative to non-adopting firms. Some archival studies reveal a positive relationship between KAM reporting and audit quality (e.g., Li *et al.*, 2019; Reid *et al.*, 2019; Kitiwong and Sarapaivanich, 2020). Nevertheless, there are also studies that find no effect on audit quality (e.g., Gutierrez *et al.*, 2018; Bédard *et al.*, 2019).

There is also a growing stream of research on linguistic aspects of KAM reporting. For example, Seebeck and Kaya (2022) analyze auditor's reports before and after their expansion in the UK and Ireland. They show that the communicative value (measured by readability, evaluative content, visual aids, and specificity) improves in post-expansion periods. However, they find that the improvement differs across audit firms, clients, and KAM disclosure characteristics. Furthermore, they reveal that greater specificity in KAM disclosure leads to significantly positive market reactions. This finding could indicate that dissimilar wording is more likely perceived by market participants than boilerplates. For a similar sample, Smith (2021) reveals that the readability of auditor's reports has increased, and more accurately reflects the risk-related nature of audits. By contrast, Carver and Trinkle (2017) provide evidence supporting decreased readability, using US non-professional investors as participants in an experiment. Velte (2020) shows evidence for increased readability of KAMs if the client's audit committee has high financial and industry expertise. He analyzes a sample

of UK-listed companies for 2014-2017. In another study using UK data from 2014-2015, he also finds a positive relationship between the percentage of women on audit committees and the readability of KAMs (Velte, 2018). Applying a multi-country study with KAM data from the UK, France, and the Netherlands, Pinto *et al.* (2020) reveal that KAMs based on accounting standards with higher rules-based characteristics decrease the readability of auditors' reports. Zeng *et al.* (2021) analyze different disclosure characteristics (e.g., specificity, similarity, readability, and length) in Chinese KAM reports from 2017. They find an increase in similar wordings if a KAM relating to a specific issue is disclosed by the same auditor in a specific industry. By contrast, by analyzing the association between KAM dissimilarity and audit risk (measured by audit fees) in expanded auditor's reports of UK listed firms from 2013 to 2019, Deneuve *et al.* (2022) show descriptively, that there is a high dissimilarity rate between KAMs on the same issue compared to industry peers, suggesting that boilerplates are not used in KAM disclosures. Using the same time frame and a sample of listed companies in the UK, Jada and Franke (2022) analyze the similarity of whole KAM sections in auditor's reports for two consecutive periods. They reveal that KAM sections have a mean similarity rate of 0.71 and show that the rate is negatively associated with a change of the audit firm and audit partner, as well as changes in client's financial risk variables (e.g., intangibles and leverage).

In summary, it can be concluded that significant effects of KAM reporting can be observed, but cannot be revealed in all studies. Furthermore, little research focuses on linguistic aspects (mainly on readability) of KAM disclosure with some contrary results. Against this background, it is even more critical to identify possible limitations of the information value, as these can prohibit positive effects. Furthermore, to the best of our knowledge, there is no research concerning text similarity of KAMs on the same issue at a client level and the underlying determinants.

9.2.3 Development of the Research Questions and Hypotheses

One of the main reasons for the reform of the auditor's report and the implementation of KAMs was to eradicate the standardization and make the report more individualized. Therefore, there is an obvious need to analyze whether this has really occurred or whether standard formulations or boilerplates (i.e., old patterns) are still evident, which

would limit the intended increase in information value and thus the relevance of the expanded reporting for the addressees. The auditor may be discouraged from overly offensive and individual reporting due to potential liability risks and may resort to standard formulations and innocuous boilerplates that are not legally contestable (Brasel *et al.*, 2016). However, standard formulations could nonetheless increase the readability of the disclosed information by improving the comparability for addressees (Schlüter and Ratzinger-Sakel, 2021). Moreover, changing the KAM without adding new information (e.g., by using synonyms) may even introduce noise to the auditor's report.

Audit research has focused predominantly on whether reporting on KAMs is relevant to decision-making or valuable to the addressees. However, usefulness requires that the information provided be new. When there is no change in the wording, addressees cannot assess whether this relates to no change in the auditor assessment or to the fact that the auditor refrains from precise formulations and deliberately uses boilerplates. If the auditor discloses KAMs on the same issue in consecutive years, new information will reduce the text similarity rate to previous years' disclosures. By contrast, standard formulations and boilerplate reporting would lead to a high similarity rate. Furthermore, the text similarity might differ if another audit firm discloses a KAM on the same issue following an auditor change. To identify such patterns in KAM reporting, we state the following research questions:

RQ 5.1: *How high is the similarity rate of consecutive KAMs on the same issue at a client level when reported by the same auditor?*

RQ 5.2: *How high is the similarity rate of consecutive KAMs on the same issue at a client level when reported by a different auditor?*

In addition to the textual analyses of similarities in KAM reporting, it is also necessary to investigate potential similarity drivers. Specific client and/or auditor characteristics could lead to a high/low text similarity and boilerplate reporting. Therefore, we state the following research question:

RQ 5.3: *What are determinants of text similarity of consecutive KAMs on the same issue at a client level?*

To examine potential determinants, we focus on four areas: client size and visibility, client financial position, client corporate governance strength, and auditor tenure.

Large audit clients are typically more difficult to audit, as the audit requires more resources and audit procedures. Furthermore, these clients are usually more visible to stakeholders than smaller firms and entail a higher reputation and litigation risk for the auditor (Reynolds and Francis, 2000). Therefore, greater attention might be paid to the auditor's report, which gives the auditor an incentive to focus on more differential reporting in KAM disclosures. However, the auditor could also use standard formulations to mitigate the related risks when auditing large clients. Therefore, we do not expect a direction of the impact on text similarity when using a client firm's market capitalization to capture size and visibility.

H1: Client size and visibility are related to the text similarity of consecutive KAMs on the same issue at a client level.

Prior research shows that KAM disclosure is related to auditor litigation (Kachelmeier *et al.*, 2020). This is especially relevant for auditors of clients facing a poor financial position and having a high-risk profile. The auditor may increase her/his effort to reduce the litigation risk, which is also reflected in more differentiated KAM reporting. However, it is also possible that the auditor is inclined to use innocuous standard formulations, e.g., which are not legally contestable (Brasel *et al.*, 2016). We use the interest rate paid by client firms to capture the risk profile. Due to the contrary arguments, we do not predict a direction for the relationship with the text similarity of consecutive KAMs on the same issue. By contrast, if the company is in a healthy financial position, we expect auditors to be more willing to repeat disclosed information, as the public attention, scrutiny, and therefore the litigation risk and pressure to report in a differentiated manner might be low. However, a stable financial position and low litigation risk could also incentivize the auditor to report more individually and differentiated. Therefore, we do not expect a direction for the relationship of the client firm's equity share with the text similarity of consecutive same KAMs as well. The client's overall profitability might also be essential for the KAM disclosure. The auditor might be more inclined to use similar formulations without considering the innocuousness, if the company is highly profitable and the litigation risk relatively low.

Nevertheless, similar to our arguments related to a healthy financial situation reflected through a high portion of equity, it is also possible that the auditor is more willing to report dissimilarly when the client's profitability is high and the auditor's own litigation risk is low. Hence, we do not expect a direction for the relationship with text similarity when using the operative return on assets as a profitability proxy. By contrast, if the profitability is low and the client reports a loss, the auditor might be more willing to report in a differentiated manner to convey concerns about potential opportunistic management behavior, as firms in financial distress have more incentives towards earnings management (Francis and Wang, 2008). Nevertheless, there is the presumption that the auditor ultimately resorts to legally innocuous boilerplates. Therefore, we do not expect a direction of the effect on text similarity if the company reports a loss in the audited financial statements. After evaluating the above arguments for our proxies covering the client's financial position, we state the following hypothesis in the null-form:

H2: The client's financial position is related to the text similarity of consecutive KAMs on the same issue at a client level.

Prior research shows a positive association between the audit committees' expertise (Velte, 2020), the percentage of women on audit committees (Velte, 2018), and the readability of KAMs. Strong corporate governance, reflected in an active supervisory board and strong internal control, could lead to closer monitoring of the auditor's work, incentivizing the auditor to report less similarly. Therefore, we expect more differentiated reporting and assume a negative relationship between the number of client supervisory board meetings and the text similarity of KAMs on the same issue. This leads to the following hypothesis:

H3: Strong corporate governance is negatively related to the text similarity of consecutive KAMs on the same issue at a client level.

With a growing auditor-client relationship, the auditor can gain more client-specific expertise and is more able to report specific aspects in KAM reporting, which might result in more diverse reporting behavior. This argument is also in line with research that finds a positive relationship between tenure and audit quality (Johnson *et al.*,

2002). We use auditor tenure as a proxy and expect a negative relationship with text similarity of KAMs on the same issue.

H4: Auditor tenure is negatively related to the text similarity of consecutive KAMs on the same issue at a client level.

9.3 Methodology

9.3.1 Sample

Our sample consists of all German-listed firms in the HDAX index[34] as of March 03, 2021. We obtained capital market and accounting data for our sample period (2017-2019) from Refinitiv Eikon and Bureau Van Dijk Dafne. We manually collected data on statutory auditors, auditor changes, audit fees, KAMs (we extracted each issue (headings) and the underlying text), and the number of business segments from the consolidated financial statements. The initial sample consists of 99 firms (297 analyzable auditor's reports). For our analysis of text similarity, we exclude seven firms (21 auditor's reports) with foreign headquarters, one firm (three auditor's reports) with a no auditor's report at all, and six individual auditor's reports due to firms' initial public offering (IPO) within the sample period and therefore no auditor's reports. However, the firm itself remains in the sample. This leaves a final sample size of 91 firms and 267 analyzable auditor's reports.

For our regression analysis, we further exclude 12 firms (36 auditor's reports) from the banking, insurance, and financial services sectors, due to different financial reporting requirements and characteristics. Next, we exclude four firms subject to IPO between 2017 and 2019 (six auditor's reports) and three firms (nine auditor's reports) without any KAMs on the same issue in the sample period. Furthermore, we drop three firms (nine auditor's reports) with missing values for the independent variables. This leaves a final sample of 69 firms (207 auditor's reports). Table 8 summarizes the sample selection process for both analyses.

[34] The HDAX is a German stock market index. It consists of all member companies of the DAX (40 largest companies trading on the Frankfurt Stock Exchange), MDAX (Mid Cap DAX, which contains the 50 largest companies by market capitalization below the DAX stocks), and TecDAX (30 largest German companies from the technology sector) indices.

	Number of firms	Number of auditor's reports
HDAX	**99**	**297**
Analysis of text similarity		
Less		
Firms with foreign headquarters	-7	-21
Firms with no auditor's report	-1	-3
No auditor's reports due to IPO between 2017 and 2019	/	-6
Final sample size	**91**	**267**
Regression analysis		
Less		
Firms from banking, insurance, financial services sector	-12	-36
Firms subject to IPO between 2017 and 2019	-4	-6
Firms without same-issue KAMs between 2017 and 2019	-3	-9
Firms with missing values for independent variables	-3	-9
Final sample size	**69**	**207**

Table 8: Sample selection

9.3.2 Text Similarity

To answer our research questions and to test our hypotheses regarding boilerplate reporting, we use the Levenshtein distance to measure text similarity (Levenshtein, 1966). This approach, which originates from linguistics, describes the minimum number of characters or letters that must be modified to convert a source text into a target text. Replacements, deletions, and insertions are counted as one change.[35] Therefore, the Levenshtein distance measures the similarity between two words by calculating an edit distance. Figure 4 illustrates the underlying algorithm. To convert the word "Firmenwert" (source text; German translation for "goodwill") into the word "goodwill" (target text), at least nine change steps are required. Therefore, the two terms have a Levenshtein distance of nine. By contrast, no change in the wording (source text = target text) would result in a distance of zero and, therefore, 100% text similarity.

[35] To calculate the Levenshtein distance, we used the R-package "stringdist".

Figure 4: Levenshtein distance between "Firmenwert" and "Goodwill"

Notes: Letters in bold grey indicate retained characters. Dots indicate deleted characters. All other letters must be replaced or inserted.

To determine the Levenshtein distance, we perform various pairwise comparisons of individual KAMs on the same issue. In this manner, we clean up the full text of each KAM reporting section by deleting all special characters and numerical values to avoid distortions in the distances determined. For example, numerical data reported in KAMs (e.g., balance sheet data) must be assumed to change annually. We then divide the reporting section into the individual KAMs, which is unproblematic, as the respective subsection headings separate them. First, we compare KAMs on the same issue with the same auditor at the client level (e.g., KAMs on revenue recognition at company A with auditor X in years t_1 and t_2). Thus, there are two pairwise comparisons for each issue-client-auditor combination (2017-2018 and 2018-2019). Second, we examine the effect of auditor changes. Accordingly, we compare the text similarity of KAMs on the same issue for which a different audit firm has conducted the audit in each case (e.g., KAMs for revenue recognition at company A with auditor X in t_1 with KAMs for revenue recognition at company A with auditor Y in t_2). Thus, at this level, pairwise comparisons for each issue-client combination only result if the auditor is different in two consecutive years. The similarity rate for each pairwise comparison is calculated as follows:

$$SIM_{i,t} = 1 - \left(\frac{Levenshtein\ distance\ between\ KAM_{i,t1}\ and\ KAM_{i,t2}}{\left(\frac{\sum Characters\ KAM_{i,t_1} + \sum Characters\ KAM_{i,t_2}}{2} \right)} \right) \quad (1)$$

If there is more than one KAM on the same issue for a client, we use the mean of these to calculate an overall client-wide text similarity.

9.3.3 Determinants of Text Similarity

We estimate the following OLS regression model in order to examine the association between auditor and client characteristics and the text similarity in KAM disclosures:

$$SIM_{i,t} = \beta_0 + \beta_1 MARKETCAP_{i,t} + \beta_2 EQUITY_{i,t} + \beta_3 INTEREST_{i,t} + \beta_4 OROA_{i,t} + \beta_5 LOSS_{i,t} + \beta_6 MEET_{i,t} + \beta_7 TENURE_{i,t} + \beta_8 SEG_{i,t} + \beta_9 AUDIT\_FEES_{i,t} + \beta_{10} NAS\_FEES_{i,t} + \beta_{11} BUSY_{i,t} + \beta_{12} AUDCHG_{i,t} + \beta_{13} PCHG_{i,t} + \beta_{14} EXPERT_{i,t} + \beta_k Fixed\_Effects_{i,t} + \varepsilon_{i,t} \quad (2)$$

where *SIM* (dependent variable) is the firm-scaled text similarity, as the average similarity of the individual same-issue KAMs of a firm in the respective years. We calculate, for each sample firm, the mean of all pairwise KAM comparisons for 2018 (comparison 2017 and 2018) and 2019 (comparison 2018 and 2019). Therefore, we include and compare only KAMs on the same issue (e.g., KAMs on revenue recognition at company A in years t_1 and t_2).

We include the following variables to analyze the effect of potential determinants of text similarity. For client size and visibility, we include *MARKETCAP*, the common logarithm of the firms' market capitalization, as a proxy. Covering client financial position, we include *EQUITY* as a proxy for the firms' equity basis, defined as the amount of equity divided by total assets. *INTEREST* is the average interest ratio of the client firm calculated as interest expenditure on debt divided by the sum of short term debt and current portion of long term debt plus long term debt. *OROA* is measured as profit before taxes divided by total assets. *LOSS* is a dichotomous variable that takes the value of one if the client incurred losses during the current year and zero otherwise. To reflect *client* corporate governance strength, we include *MEET*, the common logarithm of the number of supervisory board meetings per year. As a proxy for auditor tenure, we include *TENURE* (the common logarithm of the number of years of the current auditor's tenure).

Furthermore, we include the following control variables. Prior research has shown that higher complexity leads to more areas of risk and more reported KAMs (Pinto and Morais, 2019). Therefore, we use the number of business segments (*SEG*) as a proxy (Bedard *et al.*, 2008) for this. We assume that more complexity makes the audit process more difficult for the auditor and requires more audit procedures, incentivizing the

auditor to use standard formulations, as the focus is more on complex audit procedures than on reporting. Hence, we assume a positive effect on the similarity rate.

Additionally, we include *AUDIT_FEES* (common logarithm of the level of audit services) and *NAS_FEES* (common logarithm of the level of NAS) to capture the extent of received audit services and NAS. More audit procedures lead to higher audit fees. Therefore, we assume that this incentivizes the auditor to use fewer standard formulations, as the auditor may generate more client-specific knowledge through the provision of more audit procedures, which enables her/him to report in a more differentiated manner. This effect can be strengthened if the auditor also provides NAS and can generate knowledge spillovers (DeAngelo, 1981b). On the other hand, it can be assumed that higher levels of audit and non-audit fees generate a greater dependency on the client (DeAngelo, 1981b; Pinto and Morais, 2019), which could incline the auditor to report less critically and instead use standard formulations and boilerplates to avoid disagreements with the client's management. Therefore, we do not predict the direction of association between the level of audit and NAS fees and the similarity rate of same-issue KAMs.

BUSY is an indicator of the busy season (dummy variable that takes the value of one for firms with a fiscal year-end on December 31 and zero otherwise). As December 31 is the typical fiscal year-end in most Northern Hemisphere countries, this busy season may render conducting all the audit procedures difficult and costly (Hay, 2013; Pinto *et al.*, 2020) and place the auditor under time pressure. Therefore, auditors may use standard formulations and boilerplate reporting, as there is insufficient time for differentiated reporting, and we thus expect a positive effect on text similarity.

An auditor's change directly impacts the auditor's experience with the client. We expect that the succeeding auditor might not be willing to take over the reporting of the preceding auditor. Furthermore, the new auditor may have her/his own formulations (or even her/his own standard texts and boilerplates). Thus, the text similarity of KAMs on the same issue might be lower after a switch. Therefore, we expect a negative effect if there is an auditor change. This effect can also be assumed when the audit partner changes (e.g., due to the fresh perspective). There is also research that finds positive effects on audit quality in years immediately surrounding a partner rotation (Lennox *et*

al., 2014). However, because the audit firm and probably members of the audit team do not change, the effect might be lower than a change in the audit firm. Nevertheless, we also expect a negative impact in cases of a partner change. We include *AUDCHG* as an indicator variable set to one if the client firm has changed its auditor since the previous year and zero otherwise. *PCHG* is the corresponding indicator variable set to one if the audit partner has changed since the previous year and zero otherwise.

EXPERT is the industry share of the auditor (sum of audit fees paid to a client's auditor by companies from the client's industry divided by all audit fees paid by companies from the client's industry) as a proxy for industry expertise. We assume that the reporting might be more differentiated if the auditor has more industry-specific expertise, an essential factor in producing high audit quality (DeFond and Zhang, 2014). Therefore, we expect a negative effect on text similarity of KAMs on the same issue.

Finally, we include a set of year, industry, and auditor dummies (*Fixed_Effects*). We define all variables in the appendix. We winsorize all continuous variables at 1% and 99% (only at 99% for variables with a lower bound of zero, e.g., audit fees) and cluster standard errors by client companies in all analyses.

9.4 Results

9.4.1 Text Similarity

We first analyze text similarities for the whole sample. Table 9 presents the results. For pairwise comparisons of KAMs on the same issue disclosed by the same auditor for the same client between 2017 and 2018 (column 1), we find an average Levenshtein distance of 746. Concerning the mean number of characters par KAM, we observe a similarity rate of 0.803. The minimum distance is zero, indicating that there are KAM pairs with a similarity rate of 1.000 (i.e., 100% text similarity, i.e., identical text). This is, for example, the case for the KAM "warranty provision" disclosed in the auditor's reports of Volkswagen and Nordex (comparison 2017 and 2018 as well as 2018 and 2019). PwC audited both companies. The value for the comparison period 2018 and 2019 (similarity rate 0.790) is pretty similar to those of 2017 and 2018 (column 2). This observation can also be confirmed by conducting a Mann-Whitney-U test

(untabulated), as we cannot find a significant difference between these two time frames ($p = 0.431$).

	2017-2018	2018-2019	Sum
Levenshtein distance			
Mean	745.49	721.21	733.62
SD	879.51	956.22	1,042.53
Min	0.00	0.00	0.00
Max	5,537.00	6,398.00	6,398.00
Median	329.00	258.00	293.00
Number of characters			
Mean	3,690.10	3,666.12	3,678.38
Text similarity rate			
Mean	0.803	0.790	0.797
Mann-Whitney-U test (2017-2018 vs. 2018-2019)	$p = 0.431$		

Notes: The table reports the Levenshtein distance, the number of characters, and the text similarity rate per KAMs on the same issue at a client level for the comparison periods 2017-2018 and 2018-2019 and the sum. SD = standard deviation.

Table 9: Text similarities

Next, we analyze text similarities by different audit firms. We therefore calculate the aggregated means differentiated by the audit firm (non-Big 4 auditors are collapsed). Table 10 shows the results. The lowest mean for the Levenshtein distance is observed for non-Big 4 auditors (mean = 234), resulting in an average similarity rate of 0.934, compared to the average number of characters. The lowest distance for Big 4 auditors (mean = 445), resulting in a similarity rate of 0.868, is observed for Deloitte. This is followed by EY (mean distance = 536) and PwC (mean distance 705), resulting in an average similarity rate of 0.824 and 0.825. The highest distance (1,189) and the lowest similarity rate (0.700) are thus observed for KPMG. Applying a Kruskal-Wallis test (untabulated), we find significant differences between the auditors ($p < 0.001$).[36] To sum up, it can be generally stated that the similarity rates across all audit firms are at least 0.700 and thus relatively high. This means that, on average, at least two-thirds of KAMs match that of the following year, indicating the use of similar wording and boilerplates.

[36] Mann-Whitney-U tests (untabulated) also reveal significant differences between Big 4 and non-Big 4 ($p = 0.037$), KPMG and non-Big 4 ($p = 0.001$), EY and non-Big 4 ($p = 0.015$), KPMG and EY ($p < 0.001$), KPMG and Deloitte ($p < 0.001$), PwC and EY ($p = 0.019$), and PwC and Deloitte ($p = 0.003$).

	KPMG	PwC	EY	Deloitte	Non-Big 4
Levenshtein distance					
Mean	1,189.22	704.91	536.25	444.83	234.00
SD	1,268.30	1,188.12	600.77	456.17	368.23
Min	0.00	0.00	0.00	0.00	0.00
Max	5,537.00	6,398.00	2,530.00	1,782.00	1,111.00
Median	758.00	70.00	323.00	375.50	69.50
Number of characters					
Mean	4,015.14	3,687.40	3,404.62	3,529.28	3,701.92
Text similarity rate					
Mean	0.700	0.825	0.824	0.868	0.934
Kruskal-Wallis test (KPMG vs. PwC vs. EY vs. Deloitte vs. Non-Big 4)			$p < 0.001$		

Notes: The table reports the Levenshtein distance, the number of characters, and the text similarity rate per KAMs on the same issue at a client level distinguished between the Big 4 auditors and aggregated for non-Big 4 auditors. There are five non-Big 4 obersvations in the sample. SD = standard deviation.

Table 10: Text similarities by audit firm

Lastly, we analyze the similarity rates in audit firm changes. Table 11 presents the results, with the mean Levenshtein distance of about 2,796 characters (column 1). Concerning the mean number of characters of a KAM (3,723), we observe a similarity rate of 0.267. By contrast, the mean distance in case of no auditor change is about 630 characters, resulting in a similarity rate of 0.840. Applying a Mann-Whitney-U test, we also find a significant difference ($p = <0.001$) if a new auditor discloses the KAMs. The difference indicates that the new auditor only partially follows the formulations of the auditor in the previous year and increasingly uses her/his own formulations, resulting in significantly lower similarity compared to the previous year's KAM.

	Audit firm change	No audit firm change
Levenshtein distance		
Mean	2,796.25	629.64
SD	1,092.35	932.30
Min	1,417.00	0.00
Max	4,594.00	6,398.00
Median	2,539.50	242.00
Number of characters		
Mean	3,722.63	3,676.03
Text similarity rate		
Mean	0.267	0.840
Mann-Whitney-U test (Audit firm change vs. no audit firm change)	p = <0.001	

Notes: The table reports the Levenshtein distance, the number of characters, and the text similarity rate per KAMs on the same issue at a client level, distinguishing between the occurrence of an audit firm change or not. SD = standard deviation.

Table 11: Text similarities following an audit firm change

Overall, the text similarity analyses show that reporting of consecutive KAMs on the same issues at the client level differs only slightly over time across all audit firms. The average distance across all audit firms is 734 characters, corresponding to an average similarity rate of around 0.797. The fears of standard reporting and the use of boilerplates are indeed justified, according to these results. Although some texts are dissimilar, the high similarity rates and the examples of 100% similarity suggest boilerplate reporting. However, due to the often multi-year nature of the issues addressed in KAMs, high similarity rates of the same KAMs at the same client and the same auditors can be expected. Nevertheless, it remains unclear whether this repetitive reporting meets the stakeholder's need for information and whether it fulfills the regulators' objectives.

9.4.2 Determinants of Text Similarity

Table 12 presents summary statistics for all of our variables. The mean (median) value for *SIM* is 0.801 (0.868). The minimum is about 0.000, and the maximum is 1.000 (i.e., 100% text similarity, i.e., identical text).

Variable	N	Mean	SD	Min	25%	Median	75%	Max
SIM	138	0.801	0.219	0.000	0.734	0.868	0.951	1.000
MARKETCAP	138	6.837	0.571	5.131	6.455	6.808	7.226	8.016
EQUITY	138	0.405	0.168	0.071	0.272	0.406	0.504	0.822
INTEREST	138	0.033	0.021	0.002	0.019	0.030	0.043	0.100
OROA	138	0.073	0.056	-0.020	0.042	0.063	0.098	0.312
LOSS	138	0.087	0.283	0.000	0.000	0.000	0.000	1.000
MEET	138	0.789	0.153	0.602	0.699	0.778	0.903	1.255
TENURE	138	0.965	0.491	0.000	0.699	1.000	1.279	1.964
SEG	138	0.511	0.193	0.000	0.477	0.477	0.602	0.903
AUDIT_FEES	138	3.278	0.595	2.146	2.852	3.073	3.736	4.708
NAS_FEES	138	2.366	0.996	0.000	1.826	2.477	2.989	4.519
BUSY	138	0.884	0.321	0.000	1.000	1.000	1.000	1.000
AUDCHG	138	0.080	0.272	0.000	0.000	0.000	0.000	1.000
PCHG	138	0.145	0.353	0.000	0.000	0.000	0.000	1.000
EXPERT	138	0.464	0.338	0.010	0.207	0.423	0.751	1.000

Notes: The table reports the descriptive statistics of the overall sample. All variables are defined in the appendix. SD = standard deviation.

Table 12: Descriptive information

Table 13 presents the Pearson correlation matrix. This matrix and the variance inflation factors (VIF; untabulated) do not indicate a multicollinearity problem (the largest VIF is 6.32 for *AUDIT_FEES*).

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 *SIM*	1.00														
2 *MARKETCAP*	0.02	1.00													
3 *EQUITY*	0.05	**-0.21**	1.00												
4 *INTEREST*	0.11	**-0.19**	-0.05	1.00											
5 *OROA*	-0.02	-0.14	**0.45**	-0.02	1.00										
6 *LOSS*	-0.09	-0.09	**-0.22**	0.02	**-0.32**	1.00									
7 *MEET*	-0.06	0.02	0.06	-0.10	0.05	-0.02	1.00								
8 *TENURE*	**0.46**	**0.26**	**-0.19**	-0.02	**-0.26**	-0.09	-0.12	1.00							
9 *SEG*	0.06	**0.35**	**-0.27**	-0.02	-0.09	-0.11	0.07	**0.19**	1.00						
10 *AUDIT_FEES*	0.01	**0.77**	**-0.39**	-0.15	**-0.41**	0.04	0.14	**0.35**	**0.46**	1.00					
11 *NAS_FEES*	0.06	**0.46**	**-0.27**	-0.03	**-0.24**	-0.10	0.03	**0.36**	**0.41**	**0.64**	1.00				
12 *BUSY*	-0.01	-0.03	-0.10	-0.06	0.05	-0.05	-0.13	0.12	-0.06	-0.06	-0.01	1.00			
13 *AUDCHG*	**-0.73**	-0.14	**0.15**	-0.01	**0.17**	0.00	0.16	**-0.58**	-0.02	-0.13	-0.09	-0.06	1.00		
14 *PCHG*	0.09	-0.12	0.12	0.06	0.04	0.02	-0.09	0.07	-0.04	-0.18	-0.10	0.08	-0.12	1.00	
15 *EXPERT*	-0.08	**0.43**	**-0.29**	-0.02	**-0.25**	0.03	-0.12	**0.20**	0.14	**0.45**	**0.23**	0.05	-0.15	-0.09	1.00

Notes: The table reports Pearson correlations. Bold correlations are significant at the 5% level. All variables are defined in the appendix.

Table 13: Correlations

Table 14 reports the regression results for our dependent variable *SIM*. Concerning our first hypothesis that relates to client size and visibility, we do not find a significant effect of *MARKETCAP* on *SIM*. In consequence, the size and visibility of the client seem not to be related to text similarity of consecutive KAMs on the same issue at a client level, and we cannot reject our hypothesis.

Regarding our second hypothesis, we find that auditors tend to use more boilerplates, resulting in higher similarity rates when the client is in a good financial position, i.e., has a stable equity basis. The coefficient for *EQUITY* is positive and statistically significant (0.230, $p = 0.012$). However, the other proxies covering the client's financial position seem unrelated to *SIM*, as no variables (*INTEREST*, *OROA*, and *LOSS*) are statistically significant. Therefore, we can only partially confirm our hypothesis.

Considering the client's corporate governance strength (*H3*), we find that strong corporate governance (i.e., more meetings of the supervisory board) does not influence the auditor's reporting behavior in using boilerplates, as the coefficient of the variable *MEET* ($ß_6$) is not statistically significant. Hence, we cannot confirm our hypothesis. A potential reason might be that the supervisory board already gets a more detailed report from the auditor. Therefore, there might be less focus on KAM disclosure in the auditor's report, which is mainly addressed to external stakeholders.

Finally, auditor tenure also seems unrelated to *SIM*, as the coefficient for *TENURE* is statistically insignificant. Therefore, the duration of the auditor-client relationship and the generated client-specific knowledge seem to have no effect on the text similarity of consecutive KAMs on the same issue. Consequently, we cannot confirm *H4*. Therefore, only an auditor change might result in dissimilar wording, as the auditor does not seem to change his reporting regardless of whether s/he audits for the first or the tenth time.

This assumption can be confirmed when referring to our set of control variables. We only find one significant effect, the coefficient for *AUDCHG* is significantly negative (-0.633, $p < 0.001$). Hence, this result also supports our descriptive results for *RQ 5.2*. By contrast, although with a negative coefficient, a partner change seems to have no effect, due to the insignificant coefficient for *PCHG*. All other controls also seem unrelated to *SIM*, as no coefficients are statistically significant.

	DV = *SIM*		
Variable	Coefficient	t-stat	
Client's size and visibility			
MARKETCAP	0.002	0.06	
Client's financial position			
EQUITY	0.230	2.59	**
INTEREST	0.555	0.85	
OROA	0.084	0.30	
LOSS	-0.010	-0.21	
Client's corporate governance			
MEET	-0.023	-0.28	
Tenure			
TENURE	-0.012	-0.37	
Controls			
SEG	0.017	0.24	
AUDIT_FEES	0.005	0.14	
NAS_FEES	0.008	0.37	
BUSY	0.001	0.02	
AUDCHG	-0.633	-12.05	***
PCHG	-0.019	-0.53	
EXPERT	-0.052	-0.62	
Intercept	0.891	4.76	***
Industry fixed effects	Yes		
Auditor fixed effects	Yes		
Year fixed effects	Yes		
N	138		
adj. R-squared	0.6222		

Notes: The table presents OLS regression results for *SIM*. *, **, *** significant at the 10%, 5%, and 1% levels, respectively (two-tailed). Standard errors clustered by company. All continuous variables are winsorized at 1% and 99%. All variables are defined in the appendix.

Table 14: Regression results

To conclude, the text similarity or use of boilerplate reporting in KAMs seems to be predominantly driven by the fact that the auditor uses similar formulations from previous disclosures. However, for Big 4 auditors, in particular, it can be assumed that formulation recommendations or text modules from the respective specialist departments of the audit firms were used, which could be another explanation for the high similarity rates. If a different auditor reports the KAM following a change, the similarity is less pronounced. Thus, our regression analysis essentially confirms the results of the analysis of text similarities. However, it can be expected that every new auditor falls back on her/his boilerplates, leading to high similarity rates in subsequent years. Therefore, it is questionable whether such reporting behavior meets the regulator's or addressee's expectations in terms of information value. However, these results have to be interpreted with caution. High similarity rates of consecutive KAMs

on the same issue do not automatically lead to less information value. For example, if nothing has changed, and the auditor still assumes the same risks of material misstatement, then this is also valuable and important information for addresses of the auditor's report. Nevertheless, it can be critically questioned whether the simple repetition of the wording is appropriate, as addressees cannot assess whether this relates to no change in the auditor's assessment or to the fact that the auditor uses standard texts and boilerplates. For example, the auditor could state directly that the related issue is still a KAM, but could more differentiated and show how the effects of the KAM on her/his judgment and the audit procedures have or have not changed compared to the previous year.

9.5 Conclusion

As a result of the global financial and economic crisis, numerous audit reforms were performed, especially within the EU, to restore user confidence in annual financial statements within the statutory audit. The auditor's central communication tool, the auditor's report, was also subject to extensive revision. A key element of the reform was the introduction of reporting on the risks of material misstatement judged to be significant or on particularly important audit matters (i.e., KAMs). This significantly expanded both the scope and level of detail of the auditor's report. Historically, the auditor's report has mainly contained standard formulations and boilerplate reporting elements that are not very informative for the addressees. Consequently, the reform aimed to increase the information value of the auditor's report, the transparency of the audit as a whole, and at the same time, reduce the stakeholder's expectation gap.

Following the reform, it is necessary to check whether the objectives have been achieved. Against this background, we analyze text similarities and their determinants in the reporting on KAMs in the auditor's reports of German HDAX companies in the period 2017 to 2019. We thereby extend existing research on the linguistic characteristics of extended auditor's reports (e.g., Seebeck and Kaya, 2022; Smith, 2021) and prior research on KAM reporting, which has focused on the effects of KAMs on different stakeholders. We investigate a potential threat to the effectiveness of KAMs, as high text similarity could lead to their having low information value.

The study results show partly high similarity rates between same-issue KAMs. At the level of identical pairs of company and auditors, the average similarity rate, when comparing KAMs of subsequent years, is around 0.797. For some KAMs, there is even a 100% match. When there is an auditor change, a similarity rate of around 0.267 can be identified. Our regression analysis of potential determinants of text similarities in KAM reporting confirms the results from our textual analysis. An auditor change has a significantly negative effect on text similarity. Furthermore, we find that a stable client's financial position (i.e., a high share of equity) results in a greater use of boilerplates and, therefore, higher text similarity rates. However, other client and auditor characteristics seem unrelated to text similarity.

To summarize, it is evident that standard formulations have been established from the time of introduction of the expanded auditor's report. However, this is mainly evident if the same auditor reports a KAM on the same issue in consecutive years at the client level. Hence, text similarities within ongoing auditor-client relationships over several years remain high. This is problematic, especially against the background of common long auditor-client relationships. Therefore, it remains unclear, whether there is an increase in the information value of the auditor's report and a reduction in the information and expectation gap.

However, our research is subject to some limitations. First, the small sample size and the focus on German companies limit the generalizability of our results. Nevertheless, this limitation should be seen in perspective, as we predominately consider Big 4 auditors. Second, the evaluation based on the Levenshtein distances is open to criticism. For example, mere rephrasing without changing the content, or using synonyms (e.g., decrease vs. decline) could lead to a greater distance and be wrongly interpreted as heterogeneous reporting. Therefore, future research should use larger samples and other measures of reporting similarity (e.g., cosine similarity). Third, the analyzed years were very similar. Disruptions, like the COVID pandemic or the war in Ukraine, could lead to different results in the subsequent periods. Fourth, high text similarity does not always mean less information value, e.g., if nothing has changed, this itself could also be valuable information. Lastly, we cannot assess to what extent the addressees perceive and evaluate the similarities in the KAM reporting. Therefore, future research could

provide useful insights, for instance, by conducting qualitative and experimental studies on how they react to similarities.

9.6 Appendix

Definitions of variables

Variable	Definition
SIM	Firm-scaled KAM similarity between years t_1 and t_2
MARKETCAP	Common logarithm of the client firms' market capitalization
EQUITY	Equity divided by total assets
INTEREST	Interest expense on debt divided by the sum of short-term debt and current portion of long-term debt plus long-term deb
OROA	Profit before taxes divided by total assets
LOSS	Indicator variable set to 1 if the client incurred losses during the current year and zero otherwise
MEET	Common logarithm of the number of supervisory board meetings
TENURE	Common logarithm of the number of years of the current auditor's tenure
SEG	Common logarithm of the number of business segments
AUDIT_FEES	Common logarithm of the level of audit fees
NAS_FEES	Common logarithm of the level of NAS fees
BUSY	Dummy variable that takes the value of one for firms with a fiscal year-end on December 31 as an indicator for the busy season and zero otherwise
AUDCHG	Indicator set at 1, if the client firm has changed its auditor since the previous year and zero otherwise
PCHG	Indicator variable set to 1, if there is a change of the audit partner since the previous year and zero otherwise
EXPERT	Sum of audit fees paid to a client's auditor by companies from the client's industry divided by all audit fees paid by companies from the client's industry

Chapter 10: Overall Conclusion

This dissertation analyzes the effect of potential and already implemented measures to strengthen auditor independence and increase audit quality. Against the background of this objective, five empirical studies, summarized in eight research papers, provide empirical evidence. At this stage, I wish to highlight the overall contributions (section 10.1), limitations, and avenues for future research (section 10.2) regarding this dissertation. A detailed discussion of these aspects can be found in the individual research papers.

10.1 Contributions

Overall, the results of the empirical studies in this dissertation have implications for standard setters, regulators, the auditing profession, audit researchers, companies (including their shareholders, management, and supervisory bodies), and all other stakeholders who make decisions based on audited financial statements. Therefore, they contribute to theory (i.e., the accounting literature in a broader sense and the auditing literature in a narrower sense) and provide practical implications, as discussed below.

First, this dissertation offers a comprehensive catalog of potential and innovative (regulatory) measures to strengthen the statutory auditor's independence. Depending on the instrument in question, it affects the auditor, the client, regulators, and supervisory authorities. Examples include measures regarding monitoring, sanctioning, auditor liability, restrictions on the provision of NAS, or measures to reduce familiarity within the auditor-client-relationship, and to establish and/or increase the audit competence of audit committees and supervisory boards, improvements in financial supervision, or the introduction of a statutory fee schedule. Furthermore, the focus is on more than just audits of PIEs. Instead, the suitability of the measures is also shown regarding audits of non-PIEs. Therefore, the results are novel and contribute to closing a critical research gap, as the focus of prior research and regulators (when deciding on regulatory measures) was predominately on audits of PIEs. In this respect, the dissertation provides new and valuable insights by supporting the suitability of measures from the perspective of auditors and important stakeholders (i.e., non-

professional investors and bankers) with empirical evidence. Moreover, the findings suggest a need for additional (regulatory) measures to ensure strong auditor independence. It is noteworthy that some of the proposed and advocated measures (e.g., increased auditor liability or audit and accounting competence requirements in audit committees) have already been implemented within the FISG, again highlighting the current relevance of the results.

Second, beyond stakeholder perceptions of the suitability of measures for improving auditor independence, this dissertation also provides comprehensive insights into some selected measures and their effect on perceptions of audit quality and the two components, namely auditor independence and auditor competence. The analyzed measures are a non-provision of NAS (either by pure audit firms, or a non-provision of NAS to audit clients) and a statutory fee schedule. As, for example, pure audit firms and a statutory fee schedule do not exist in any jurisdiction, data for archival analysis is unavailable. Therefore, this dissertation contributes insights on an experimental basis on the effect of these measures, based on the perceptions of two relevant stakeholder groups (non-professional investors and bankers). Furthermore, these measures have not been empirically investigated, so that this dissertation contributes to closing a further research gap. Moreover, the experiment also contributes to evaluating current behavior in the audit market following recent accounting scandals. An example is KPMG UK's initiative to no longer perform consultancy work for its FTSE 350 audit clients or EY's current plan to split its audit and advisory operations worldwide. Therefore, the results are timely and relevant and allow for deriving potential impacts of these initiatives.

Finally, this dissertation also contributes by analyzing the (anticipatory) effects of already implemented measures on factual and perceived audit quality using archival data. These are mandatory audit firm rotation and the extension of the auditor's report (including the reporting of KAM), which were implemented by Regulation (EU) No. 537/2014. Following the introduction of these measures, it is necessary to analyze their "real" impact. For this purpose, the dissertation provides valuable insights, especially for regulators and standard setters within the EU and other jurisdictions that have implemented comparable instruments. Furthermore, the findings are equally of interest to jurisdictions considering introducing these measures and to the auditing profession

(e.g., by critically reviewing their own practices). Moreover, the results of the studies suggest that not all measures of the existing regulatory environment may have the intended effect. In this respect, the results also show a need to adapt the existing regulatory framework and the underlying auditing standards.

10.2 Limitations and Directions for Future Research

This dissertation has some limitations, as discussed in the individual research papers. However, these might provide some directions for future research activities.

One limitation of this dissertation may be that the focus on the effects of the analyzed measures is predominantly on the effects on auditor independence and overall audit quality. With the exception of the experimental study, the effects on auditor competence are not analyzed isolated. This limits the validity of some results, as some measures might have positive effects on auditor independence, but negative effects on competence, and therefore, an unclear net effect on overall audit quality. However, in the past and in connection with recent scandals, it is usually a potential lack of auditor's independence and objectivity, which is criticized, rather than auditor competence. However, future research projects could include the overall effect on audit quality and the isolated effects on auditor independence and competence.

A further limitation might be that this dissertation focuses on one side of the coin (i.e., potential effects on audit quality and its components). However, many of the measures considered involve costs (e.g., transaction costs, information costs) that must ultimately be paid by the shareholders (e.g., through higher audit fees). These costs were not considered in the research projects, for instance, by informing the participants in the survey or the experiment, about potential measure-related costs or covering the costs in our empirical analyses. Therefore, the results do not inform as to whether such an effect (positive or negative) is optimal from an economic perspective. Consequently, future research could also cover the cost side in their analyses to draw a broader picture of the implications.

Lastly, a final limitation might be the sole focus of all research projects on the German audit market, which might limit our results' generalizability. However, Germany is a typical Continental-European jurisdiction, has one of the biggest EU audit markets, and

a significant number of PIEs. This should alleviate the limitation concerns to some extent and enable applying the results to other Continental-European jurisdictions and EU Member States. However, future research projects could use multi-country data.

Besides these limitations and the resulting implications for future research projects, this dissertation offers several further avenues for future research. For example, the comprehensive catalog of potential and innovative measures for strengthening auditor independence offers a perspective for numerous research projects dealing with individual measures. For instance, some of the presented measures have not yet been empirically investigated in detail. Therefore, experiments, for example, promise to provide a wide range of insights on single measures, especially if such measures do not exist in the "real world" setting. Furthermore, besides the observed effects on independence perceptions, there is still a need for comprehensive quantitative analysis of these measures (e.g., if sufficient data is available).

Recent regulatory changes (e.g., in the context of the FISG) also offer opportunities for future research projects. Examples could include analyzing the effects of the stricter auditor liability in Germany; or how the new requirements regarding audit and accounting competence in the audit committee (respective supervisory board) impact on audit quality, auditor independence, and auditor competence.

List of References

Agacer, G.M. and Doupnik, T.S. (1991), “Perceptions of Auditor Independence: A Cross-cultural Study”, *International Journal of Accounting*, Vol. 26 No. 2, pp. 220–237.

Albaqali, Q. and Kukreja, G. (2017), “The factors influencing auditor independence: The perceptions of auditors in Bahrain”, *Corporate Ownership and Control*, Vol. 14 No. 2, pp. 369–382.

Alsadoun, N., Naiker, V., Navissi, F. and Sharma, D.S. (2018), “Auditor-Provided Tax Nonaudit Services and the Implied Cost of Equity Capital”, *AUDITING: A Journal of Practice & Theory*, Vol. 37 No. 3, pp. 1–24.

American Institute of Certified Public Accountants (1983), *Audit risk and materiality in conducting an audit; Statement on auditing standards, 047*, American Institute of Certified Public Accountants, New York.

Andrews, D., Nonnecke, B. and Preece, J. (2003), “Electronic Survey Methodology: A Case Study in Reaching Hard-to-Involve Internet Users”, *International Journal of Human-Computer Interaction*, Vol. 16 No. 2, pp. 185–210.

Antle, R. (1982), “The Auditor As an Economic Agent”, *Journal of Accounting Research*, Vol. 20 No. 2, p. 503.

Antle, R. (1984), “Auditor Independence”, *Journal of Accounting Research*, Vol. 22 No. 1, p. 1.

Aronow, P.M., Baron, J. and Pinson, L. (2019), “A Note on Dropping Experimental Subjects who Fail a Manipulation Check”, *Political Analysis*, Vol. 27 No. 4, pp. 572–589.

Asbahr, K. and Ruhnke, K. (2019), “Real effects of reporting key audit matters on auditors' judgment and choice of action”, *International Journal of Auditing*, Vol. 23 No. 2, pp. 165–180.

Aschauer, E. and Quick, R. (2018), “Mandatory audit firm rotation and prohibition of audit firm-provided tax services: Evidence from investment consultants’ perceptions”, *International Journal of Auditing*, Vol. 22 No. 2, pp. 131–149.

Ashbaugh, H., LaFond, R. and Mayhew, B.W. (2003), “Do Nonaudit Services Compromise Auditor Independence? Further Evidence”, *The Accounting Review*, Vol. 78 No. 3, pp. 611–639.

Audit Analytics (2020), “Who Audits Public Companies – Germany”, available at: https://blog.auditanalytics.com/who-audits-public-companies-germany/ (accessed 8 September 2021).

Bae, G.S., Choi, S.U.K. and Rho, J.H. (2016), “Audit Hours and Unit Audit Price of Industry Specialist Auditors: Evidence from Korea”, *Contemporary Accounting Research*, Vol. 33 No. 1, pp. 314–340.

Bajaj, M., Gunny, K. and Sarin, A. (2003), “Auditor Compensation and Audit Failure: An Empirical Analysis”, *Working Paper, Santa Clara University*.

Bartov, E., Givoly, D. and Hayn, C. (2002), "The rewards to meeting or beating earnings expectations", *Journal of Accounting and Economics*, Vol. 33 No. 2, pp. 173–204.

Barua, A., Lennox, C. and Raghunandan, A. (2020), "Are audit fees discounted in initial year audit engagements?", *Journal of Accounting and Economics*, Vol. 69 No. 2-3, p. 101282.

Beardsley, E.L., Imdieke, A.J. and Omer, T.C. (2021), "The distraction effect of non-audit services on audit quality", *Journal of Accounting and Economics*, Vol. 71 No. 2-3, p. 101380.

Beck, A.K., Fuller, R.M., Muriel, L. and Reid, C.D. (2013), "Audit Fees and Investor Perceptions of Audit Characteristics", *Behavioral Research in Accounting*, Vol. 25 No. 2, pp. 71–95.

Beck, P.J., Frecka, T.J. and Solomon, I. (1988), "A model of the market for MAS and audit services: Knowledge spillovers and auditor–auditee bonding", *Journal of Accounting Literature*, Vol. 7, pp. 50–64.

Bedard, J.C., Hoitash, U. and Hoitash, R. (2008), "Audit pricing and internal control disclosures among non-accelerated filers", *Research in Accounting Regulation*, Vol. 20 No. 1, pp. 103–126.

Bédard, J., Coram, P., Espahbodi, R. and Mock, T.J. (2016), "Does Recent Academic Research Support Changes to Audit Reporting Standards?", *Accounting Horizons*, Vol. 30 No. 2, pp. 255–275.

Bédard, J., Gonthier-Besacier, N. and Schatt, A. (2019), "Consequences of Expanded Audit Reports: Evidence from the Justifications of Assessments in France", *AUDITING: A Journal of Practice & Theory*, Vol. 38 No. 3, pp. 23–45.

Boolaky, P.K. and Quick, R. (2016), "Bank Directors' Perceptions of Expanded Auditor's Reports", *International Journal of Auditing*, Vol. 20 No. 2, pp. 158–174.

Brasel, K., Doxey, M.M., Grenier, J.H. and Reffett, A. (2016), "Risk Disclosure Preceding Negative Outcomes: The Effects of Reporting Critical Audit Matters on Judgments of Auditor Liability", *The Accounting Review*, Vol. 91 No. 5, pp. 1345–1362.

Brydon, D. Sir (2019), *Report of the Independent Review into the Quality and Effectiveness of Audit*, London.

BT-Drucksache 16/2858 (2006), *Entwurf eines Gesetzes zur Stärkung der Berufsaufsicht und zur Reform berufsrechtlicher Regelungen in der Wirtschaftsprüferordnung (Berufsaufsichtsreformgesetz – BARefG)*.

Buckless, F.A. and Ravenscroft, S.P. (1990), "Contrast Coding: A Refinement of ANOVA in Behavioral Analysis", *The Accounting Review*, Vol. 65 No. 4, pp. 933–945.

Cameron, J., Banko, K.M. and Pierce, W.D. (2001), "Pervasive Negative Effects of Rewards on Intrinsic Motivation: The Myth Continues", *The Behavior Analyst*, Vol. 24 No. 1, pp. 1–44.

Campa, D. and Donnelly, R. (2016), "Non-audit services provided to audit clients, independence of mind and independence in appearance: latest evidence from large UK listed companies", *Accounting and Business Research*, Vol. 46 No. 4, pp. 422–449.

Carlé, T., Pappert, N. and Quick, R. (2023), "Text similarity, boilerplates and their determinants in key audit matters disclosure", *Corporate Ownership and Control*, Vol. 20 No. 2, pp. 49–62.

Carver, B.T. and Trinkle, B.S. (2017), "Nonprofessional Investors' Reactions to the PCAOB's Proposed Changes to the Standard Audit Report", *Retrived from SSRN*.

Castillo-Merino, D., Garcia-Blandon, J. and Martinez-Blasco, M. (2019), "Auditor Independence, Current and Future NAS Fees and Audit Quality: Were European Regulators Right?", *European Accounting Review*, Vol. 29 No. 2, pp. 233–262.

Causholli, M. and Knechel, W.R. (2012), "An Examination of the Credence Attributes of an Audit", *Accounting Horizons*, Vol. 26 No. 4, pp. 631–656.

Chaney, P.K. and Philipich, K.L. (2002), "Shredded Reputation: The Cost of Audit Failure", *Journal of Accounting Research*, Vol. 40 No. 4, pp. 1221–1245.

Cho, M., Kwon, S.Y. and Krishnan, G.V. (2021), "Audit fee lowballing: Determinants, recovery, and future audit quality", *Journal of Accounting and Public Policy*, Vol. 40 No. 4, p. 106787.

Choi, J.-H., Kim, J.-B. and Zang, Y. (2010), "Do Abnormally High Audit Fees Impair Audit Quality?", *AUDITING: A Journal of Practice & Theory*, Vol. 29 No. 2, pp. 115–140.

Christensen, B.E., Glover, S.M. and Wolfe, C.J. (2014), "Do Critical Audit Matter Paragraphs in the Audit Report Change Nonprofessional Investors' Decision to Invest?", *AUDITING: A Journal of Practice & Theory*, Vol. 33 No. 4, pp. 71–93.

Chung, H. and Kallapur, S. (2003), "Client Importance, Nonaudit Services, and Abnormal Accruals", *The Accounting Review*, Vol. 78 No. 4, pp. 931–955.

Church, B.K. and Zhang, P. (2011), "Nonaudit Services and Independence in Appearance: Decision Context Matters", *Behavioral Research in Accounting*, Vol. 23 No. 2, pp. 51–67.

Cohn, M. (2014), "PCAOB Concerned about Audit Fee Decreases", *AccountingToday,* 1 May, available at: https://www.accountingtoday.com/news/pcaob-concerned-about-audit-fee-decreases (accessed 8 November 2021).

Competition and Markets Authority (2019), *Statutory audit services market study: Final summary report*, London.

Coram, P.J. and Wang, L. (2021), "The effect of disclosing key audit matters and accounting standard precision on the audit expectation gap", *International Journal of Auditing*, Vol. 25 No. 2, pp. 270–282.

Darby, M.R. and Karni, E. (1973), "Free Competition and the Optimal Amount of Fraud", *The Journal of Law & Economics*, Vol. 16 No. 1, pp. 67–88.

Dart, E. (2011), "UK investors' perceptions of auditor independence", *The British Accounting Review*, Vol. 43 No. 3, pp. 173–185.

Davis, S.M. and Hollie, D. (2008), "The Impact of Nonaudit Service Fee Levels on Investors' Perception of Auditor Independence", *Behavioral Research in Accounting*, Vol. 20 No. 1, pp. 31–44.

DeAngelo, L.E. (1981a), “Auditor Independence, 'Low Balling', and Disclosure Regulation”, *Journal of Accounting and Economics*, Vol. 3 No. 2, pp. 113–127.

DeAngelo, L.E. (1981b), “Auditor size and audit quality”, *Journal of Accounting and Economics*, Vol. 3 No. 3, pp. 183–199.

Decker, C. (2018), “Stakeholders' Impact on Turnaround Performance: The Case of German Savings Banks”, *Journal of Small Business Management*, Vol. 56 No. 4, pp. 534–554.

DeFond, M. and Zhang, J. (2014), “A review of archival auditing research”, *Journal of Accounting and Economics*, Vol. 58 2-3, pp. 275–326.

Deneuve, E., Filip, A. and Jeny, A. (2022), “Key Audit Matters Dissimilarity and Audit Risks”, *Working Paper (2022 Auditing Section Midyear Meeting)*.

Directive 2006/43/EC, *Directive 2006/43/EC of the European Parliament and of the Council of 17 May 2006 on statutory audits of annual accounts and consolidated accounts, amending Council Directives 78/ 660/EEC and 83/349/EEC and repealing Council Directive 84/253/EEC: Directive 2006/43/EC*.

Directive 2013/34/EU, *Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC: Directive 2013/34/EU*.

Directive 2014/56/EU, *Directive 2014/56/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2006/43/EC on statutory audits of annual accounts and consolidated accounts: Directive 2014/56/EU*.

Directive 2014/56/EU (2014), *Directive 2014/56/EU: Directive 2014/56/EU*.

Dulleck, U. and Kerschbamer, R. (2006), “On Doctors, Mechanics, and Computer Specialists: The Economics of Credence Goods”, *Journal of Economic Literature*, Vol. 44 No. 1, pp. 5–42.

Eilifsen, A. and Knivsflå, K. (2016), “The Role of Audit Firm Size, Non-Audit Services, and Knowledge Spillovers in Mitigating Earnings Management during Large Equity Issues”, *International Journal of Auditing*, Vol. 20 No. 3, pp. 239–254.

Eilifsen, A. and Knivsflå, K.H. (2013), “How Increased Regulatory Oversight of Nonaudit Services Affects Investors' Perceptions of Earnings Quality”, *AUDITING: A Journal of Practice & Theory*, Vol. 32 No. 1, pp. 85–112.

Ettredge, M., Fuerherm, E.E. and Li, C. (2014), “Fee pressure and audit quality”, *Accounting, Organizations and Society*, Vol. 39 No. 4, pp. 247–263.

European Commission (2010), *Green Paper - Audit Policy: Lessons from the Crisis*, Brussels.

European Commission (2016), *Reform of the EU Statutory Audit Market*, Brussels.

European Economic and Social Committee (2013), *The State of Liberal Professions Concerning Their Functions and Relevance to European Civil Society - EESC/COMM/05/2013*.

Ferguson, M.J., Seow, G.S. and Young, D. (2004), “Nonaudit Services and Earnings Management: UK Evidence”, *Contemporary Accounting Research*, Vol. 21 No. 4, pp. 813–841.

Financial Reporting Council (2019), *Revised Ethical Standard 2019*, London.

Financial Reporting Council (2020), *Operational Separation Principles*, London.

FISG (2021), “Gesetz zur Stärkung der Finanzmarktintegrität (Finanzmarktintegritätsstärkungsgesetz – FISG)”, *Bundesgesetzblatt No.* 30.

Ford, J. and Marriage, M. (2018), “Auditors propose temporary client cap for Big Four”, *Financial Times,* 24 August.

Francis, J.R. (2011), “A Framework for Understanding and Researching Audit Quality”, *AUDITING: A Journal of Practice & Theory*, Vol. 30 No. 2, pp. 125–152.

Francis, J.R. and Wang, D. (2008), “The Joint Effect of Investor Protection and Big 4 Audits on Earnings Quality around the World”, *Contemporary Accounting Research*, Vol. 25 No. 1, pp. 157–191.

Friedrich, C., Pappert, N. and Quick, R. (2023), “Determinanten der Abschlussprüferhonorare bei Genossenschaftsbanken”, *Zeitschrift für das gesamte Genossenschaftswesen*, (forthcoming).

Friedrich, C., Pappert, N. and Quick, R. (2023), “The Anticipation of Mandatory Audit Firm Rotation and Audit Quality”, *Journal of International Accounting Research*, (forthcoming).

Gendron, Y. and Suddaby, R. (2004), “Professional Insecurity and the Erosion of Accountancy's Jurisdictional Boundaries”, *Canadian Accounting Perspectives*, Vol. 3 No. 1, pp. 85–115.

Gerakos, J. and Syverson, C. (2015), “Competition in the Audit Market: Policy Implications”, *Journal of Accounting Research*, Vol. 53 No. 4, pp. 725–775.

Gold, A., Heilmann, M., Pott, C. and Rematzki, J. (2020), “Do key audit matters impact financial reporting behavior?”, *International Journal of Auditing*, Vol. 24 No. 2, pp. 232–244.

Gray, G.L., Turner, J.L., Coram, P.J. and Mock, T.J. (2011), “Perceptions and Misperceptions Regarding the Unqualified Auditor's Report by Financial Statement Preparers, Users, and Auditors”, *Accounting Horizons*, Vol. 25 No. 4, pp. 659–684.

Gul, F.A. (1987), “Field Dependence Cognitive Style as a Moderating Factor in Subjects' Perceptions of Auditor Independence”, *Accounting & Finance*, Vol. 27 No. 1, pp. 37–48.

Gul, F.A. (1989), “Bankers’ Perceptions of Factors Affecting Auditor Independence”, *Accounting, Auditing & Accountability Journal*, Vol. 2 No. 3, pp. 40–51.

Gul, F.A. (1991), “Size of Audit Fees and Perceptions of Auditors' Ability to Resist Management Pressure in Audit Conflict Situations”, *ABACUS*, Vol. 27 No. 2, pp. 162–172.

Gutierrez, E., Minutti-Meza, M., Tatum, K.W. and Vulcheva, M. (2018), "Consequences of adopting an expanded auditor's report in the United Kingdom", *Review of Accounting Studies*, Vol. 23 No. 4, pp. 1543–1587.

Hay, D. (2013), "Further Evidence from Meta-Analysis of Audit Fee Research", *International Journal of Auditing*, Vol. 17 No. 2, pp. 162–176.

Hermanson, D.R., Hermanson, H.M. and Hermanson, S.D. (2020), "Where Is Public Company Auditing Headed?", *CPA Journal*, Vol. 90 No. 2, pp. 54–59.

Hill, C.L. and Booker, Q. (2007), "State Accountancy Regulators' Perceptions of Independence of External Auditors When Performing Internal Audit Activities for Nonpublic Clients", *Accounting Horizons*, Vol. 21 No. 1, pp. 43–57.

Hoitash, R., Markelevich, A. and Barragato, C.A. (2007), "Auditor fees and audit quality", *Managerial Auditing Journal*, Vol. 22 No. 8, pp. 761–786.

Hope, O.-K. and Langli, J.C. (2010), "Auditor Independence in a Private Firm and Low Litigation Risk Setting", *The Accounting Review*, Vol. 85 No. 2, pp. 573–605.

Huang, S.X., Pereira, R. and Wang, C. (2017), "Analyst Coverage and the Likelihood of Meeting or Beating Analyst Earnings Forecasts", *Contemporary Accounting Research*, Vol. 34 No. 2, pp. 871–899.

IAASB (2014), *A framework for audit quality - Key elements that create an evironment for audit quality*, International Federation of Accountants, New York.

ICAEW (2005), *Agency theory and the role of audit*.

IFAC (2021), *Handbook of the International Code of Ethics for Professional Accountants*, New York.

ISA 700, *ISA 700 (Revised), Forming an Opinion and Reporting on Financial Statements: ISA 700*.

ISA 701, *ISA 701, Communicating Key Audit Matters in the Independent Auditor's Report: ISA 701*.

Jada, H. and Franke, B. (2022), "Determinants of Key Audit Matters' Disclosures A Content Analysis of Key Audit Matters in the United Kingdom", *Working Paper (44th Annual EAA Congress)*.

Jenkins, J.G. and Krawczyk, K. (2002), "The relationship between nonaudit nervices and perceived auditor independence: Views of nonprofessional investors and auditors", *Journal of Business and Economic Perspectives*, Vol. 16 No. 2, pp. 25–36.

Jensen, M.C. and Meckling, W.H. (1976), "Theory of the firm: Managerial behavior, agency costs and ownership structure", *Journal of Financial Economics*, Vol. 3 No. 4, pp. 305–360.

Joe, J.R. and Vandervelde, S.D. (2007), "Do Auditor-Provided Nonaudit Services Improve Audit Effectiveness?", *Contemporary Accounting Research*, Vol. 24 No. 2, pp. 467–487.

Johnson, E., Khurana, I.K. and Reynolds, J.K. (2002), "Audit-Firm Tenure and the Quality of Financial Reports*", *Contemporary Accounting Research*, Vol. 19 No. 4, pp. 637–660.

Jolly, J. (2018), "KPMG to drop non-audit services for its FTSE 350 clients", *The Guardian,* 8 November, available at: https://www.theguardian.com/business/2018/nov/08/kpmg-to-drop-non-audit-services-for-its-ftse-350-clients (accessed 24 February 2021).

Kachelmeier, S.J., Rimkus, D., Schmidt, J.J. and Valentine, K. (2020), "The Forewarning Effect of Critical Audit Matter Disclosures Involving Measurement Uncertainty*", *Contemporary Accounting Research*, Vol. 37 No. 4, pp. 2186–2212.

Kahneman, D. and Tversky, A. (1979), "Prospect Theory: An Analysis of Decision under Risk", *Econometrica*, Vol. 47 No. 2, p. 263.

Kaplan, S.E. and Mauldin, E.G. (2008), "Auditor rotation and the appearance of independence: Evidence from non-professional investors", *Journal of Accounting and Public Policy*, Vol. 27 No. 2, pp. 177–192.

Khrouf, W. and Arnold, C. (2018), "Three Ways to Effectively Manage Fee Pressure", *International Federation of Accountants,* 24 July, available at: https://www.ifac.org/knowledge-gateway/preparing-future-ready-professionals/discussion/three-ways-effectively-manage-fee-pressure (accessed 17 February 2021).

Khurana, I.K. and Raman, K.K. (2006), "Do Investors Care about the Auditor's Economic Dependence on the Client?", *Contemporary Accounting Research*, Vol. 23 No. 4, pp. 977–1016.

Kinney, W.R., Palmrose, Z.-V. and Scholz, S. (2004), "Auditor Independence, Non-Audit Services, and Restatements: Was the U.S. Government Right?", *Journal of Accounting Research*, Vol. 42 No. 3, pp. 561–588.

Kirchner, A. (2020), "Der Honoraranspruch des Wirtschaftsprüfers", *WP Praxis*, Vol. 9 No. 3, pp. 64–69.

Kitiwong, W. and Sarapaivanich, N. (2020), "Consequences of the implementation of expanded audit reports with key audit matters (KAMs) on audit quality", *Managerial Auditing Journal*, Vol. 35 No. 8, pp. 1095–1119.

Knapp, M.C. (1985), "Audit Conflict: An Empirical Study of the Perceived Ability of Auditors to Resist Management Pressure", *The Accounting Review*, Vol. 60 No. 2, pp. 202–211.

Knechel, W.R., Krishnan, G.V., Pevzner, M., Shefchik, L.B. and Velury, U.K. (2013), "Audit Quality: Insights from the Academic Literature", *AUDITING: A Journal of Practice & Theory*, Vol. 32 Supplement 1, pp. 385–421.

Knechel, W.R. and Sharma, D.S. (2012), "Auditor-Provided Nonaudit Services and Audit Effectiveness and Efficiency: Evidence from Pre- and Post-SOX Audit Report Lags", *AUDITING: A Journal of Practice & Theory*, Vol. 31 No. 4, pp. 85–114.

Knechel, W.R., Sharma, D.S. and Sharma, V.D. (2012), "Non-Audit Services and Knowledge Spillovers: Evidence from New Zealand", *Journal of Business Finance & Accounting*, Vol. 39 No. 1-2, pp. 60–81.

Knechel, W.R., Thomas, E. and Driskill, M. (2020), "Understanding financial auditing from a service perspective", *Accounting, Organizations and Society*, Vol. 81 No. 1, p. 101080.

Köhler, A., Ratzinger-Sakel, N. and Theis, J. (2020), "The Effects of Key Audit Matters on the Auditor's Report's Communicative Value: Experimental Evidence from Investment Professionals and Non-professional Investors", *Accounting in Europe*, Vol. 17 No. 2, pp. 105–128.

Kowaleski, Z.T., Mayhew, B.W. and Tegeler, A.C. (2018), "The Impact of Consulting Services on Audit Quality: An Experimental Approach", *Journal of Accounting Research*, Vol. 56 No. 2, pp. 673–711.

Krishnan, G.V. and Yu, W. (2011), "Further evidence on knowledge spillover and the joint determination of audit and non-audit fees", *Managerial Auditing Journal*, Vol. 26 No. 3, pp. 230–247.

Lee, T.H. and Ali, A. (2013), "The 'Knowledge Gap' and 'Deficient Performance Gap' between Auditors and Corporate Managers: An Empirical Study in Malaysia", *Gadjah Mada International Journal of Business*, Vol. 10 No. 1, p. 113.

Lennox, C. (2005), "Audit quality and executive officers' affiliations with CPA firms", *Journal of Accounting and Economics*, Vol. 39 No. 2, pp. 201–231.

Lennox, C.S. (2016), "Did the PCAOB's Restrictions on Auditors' Tax Services Improve Audit Quality?", *The Accounting Review*, Vol. 91 No. 5, pp. 1493–1512.

Lennox, C.S., Schmidt, J.J. and Thompson, A.M. (2022), "Why are expanded audit reports not informative to investors? Evidence from the United Kingdom", *Review of Accounting Studies*, Vol. 66 No. 3, p. 433.

Lennox, C.S., Wu, X. and Zhang, T. (2014), "Does Mandatory Rotation of Audit Partners Improve Audit Quality?", *The Accounting Review*, Vol. 89 No. 5, pp. 1775–1803.

Levenshtein, V.I. (1966), "Binary codes capable of correcting deletions, insertions, and reversals", *Soviet Physics Doklady*, Vol. 10 No. 8, pp. 707–710.

Li, H., Hay, D. and Lau, D. (2019), "Assessing the impact of the new auditor's report", *Pacific Accounting Review*, Vol. 31 No. 1, pp. 110–132.

Libby, R. and Kinney, W.R. (2000), "Does Mandated Audit Communication Reduce Opportunistic Corrections to Manage Earnings to Forecasts?", *The Accounting Review*, Vol. 75 No. 4, pp. 383–404.

Lim, C.-Y. and Tan, H.-T. (2008), "Non-audit Service Fees and Audit Quality: The Impact of Auditor Specialization", *Journal ofAccounting Research*, Vol. 46 No. 1, pp. 199–246.

Lindsay, D. (1990), "An investigation of the impact of contextual factors on Candadian bankers' perceptions of auditors' ability to resist management pressure", *Advances in International Accounting*, Vol. 3, pp. 71–85.

Lindsay, D. (1992), "Auditor-Client Conflict Resolution: An lnvestigation of the Perceptions of the Financial Community in Australia and Canada", *International Journal of Accounting*, Vol. 27, pp. 342–365.

Lisic, L.L., Myers, L.A., Pawlewicz, R. and Seidel, T.A. (2019), "Do Accounting Firm Consulting Revenues Affect Audit Quality? Evidence from the Pre- and Post-SOX Eras", *Contemporary Accounting Research*, Vol. 36 No. 2, pp. 1028–1054.

Lowe, D.J., Geiger, M.A. and Pany, K. (1999), "The Effects of Internal Audit Outsourcing on Perceived External Auditor Independence", *AUDITING: A Journal of Practice & Theory*, Vol. 18 Supplement, pp. 7–26.

Lowe, D.J. and Pany, K. (1995), "CPA performance of consulting engagements with audit clients: Effects on financial statement users' perceptions and decisions", *AUDITING: A Journal of Practice & Theory*, Vol. 14 No. 2, pp. 35–53.

Luo, B. (2019), "Effects of auditor-provided tax services on book-tax differences and on investors' mispricing of book-tax differences", *Advances in Accounting*, Vol. 47 No. 2, p. 100434.

Magee, R.P. (1980), "Regulation and the Cost of Effectiveness of Independent Audit by CPA's", in Buckley, J.W. and Weston, J.F. (Eds.), *Regulation and the accounting profession*, Lifetime Learning Publications, Belmont, pp. 163–177.

Maijoor, S. and Vanstraelen, A. (2012), ""Research Opportunities in Auditing in the EU," Revisited", *AUDITING: A Journal of Practice & Theory*, Vol. 31 No. 1, pp. 115–126.

Mare, D.S. and Gramlich, D. (2021), "Risk exposures of European cooperative banks: a comparative analysis", *Review of Quantitative Finance and Accounting*, Vol. 56 No. 1, pp. 1–23.

Marten, K.-U., Quick, R. and Ruhnke, K. (2020), *Wirtschaftsprüfung: Grundlagen des betriebswirtschaftlichen Prüfungswesens nach nationalen und internationalen Normen, Lehrbuch,* 6., überarbeitete Auflage, Schäffer-Poeschel Verlag, Stuttgart.

Mauldin, E.G. (2003), "Improving auditor independence – The principles vs. standards debate: some evidence about the effects of type and provider of non-audit services on professional investors' judgments", *Research in Accounting Regulation*, Vol. 16, pp. 159–169.

Mautz, R.K. and Sharaf, H.A. (1993), *The philosophy of auditing, American accounting association*, Vol. 6, 17.th ed., American Accounting Association, Sarasota, Florida.

McKinley, S., Pany, K. and Reckers, P.M.J. (1985), "An Examniation of the Influence of CPA Firm Type, Size, and MAS Provision on Loan Officer Decisions and Perceptions", *Journal of Accounting Research*, Vol. 23 No. 2, pp. 887–896.

Meuwissen, R. and Quick, R. (2009a), "Abschlussprüfung und Beratung – Eine experimentelle Analyse der Auswirkungen auf Unabhängigkeitswahrnehmungen deutscher Aufsichtsräte", *Schmalenbachs Zeitschrift für betriebswirtschaftliche Forschung*, Vol. 61 No. 4, pp. 382–415.

Meuwissen, R. and Quick, R. (2009b), "Gefährdungen und Maßnahmen zur Stärkung der Unabhängigkeit des Abschlussprüfers – Empirische Befunde einer Befragung von Aufsichtsräten", *Zeitschrift für Corporate Governance*, Vol. 4 No. 6, pp. 273–280.

Meuwissen, R. and Quick, R. (2019), "The effects of non-audit services on auditor independence: An experimental investigation of supervisory board members' perceptions", *Journal of International Accounting, Auditing and Taxation*, Vol. 36 No. 3, p. 100264.

Mishra, S., Raghunandan, K. and Rama, D.V. (2005), "Do Investors' Perceptions Vary with Types of Nonaudit Fees? Evidence from Auditor Ratification Voting", *AUDITING: A Journal of Practice & Theory*, Vol. 24 No. 2, pp. 9–25.

Moroney, R., Phang, S.-Y. and Xiao, X. (2021), "When Do Investors Value Key Audit Matters?", *European Accounting Review*, Vol. 30 No. 1, pp. 63–82.

Newman, D.P., Patterson, E.R. and Smith, J.R. (2005), "The Role of Auditing in Investor Protection", *The Accounting Review*, Vol. 80 No. 1, pp. 289–313.

Norris, F. (2014), "Holding Auditors Accountable on Reports", *The New York Times,* 8 May, available at: https://www.nytimes.com/2014/05/09/business/holding-auditors-accountable.html (accessed 6 April 2022).

O'Dwyer, M. (2022), "EY plans global audit spin-off in drastic Big Four shake-up", *Financial Times,* 26 May, available at: https://www.ft.com/content/975214e6-a330-418d-9daf-f5b41b1847f7 (accessed 23 August 2022).

O'Keefe, T.B., Simunic, D.A. and Stein, M.T. (1994), "The Production of Audit Services: Evidence from a Major Public Accounting Firm", *Journal of Accounting Research*, Vol. 32 No. 2, p. 241.

Oppenheimer, D.M., Meyvis, T. and Davidenko, N. (2009), "Instructional manipulation checks: Detecting satisficing to increase statistical power", *Journal of Experimental Social Psychology*, Vol. 45 No. 4, pp. 867–872.

Pany, K. and Reckers, P.M.J. (1983), "Auditor independence and nonaudit services", *Journal of Accounting and Public Policy*, Vol. 2 No. 1, pp. 43–62.

Pany, K. and Reckers, P.M.J. (1984), "Non-Audit Services and Auditor Independence - A Continuing Problem", *AUDITING: A Journal of Practice & Theory*, Vol. 3 No. 2, pp. 89–97.

Pany, K. and Reckers, P.M.J. (1988), "Auditor Performance of MAS: A Study of Its Effects on Decisions and Perceptions", *Accounting Horizons*, Vol. 2 June, pp. 31–38.

Pappert, N., Bauer, S., Friedrich, C. and Quick, R. (2023), "Auswirkungen des Wirecard-Skandals auf die wahrgenommene Prüfungsqualität von EY", *Betriebswirtschaftliche Forschung und Praxis*, (forthcoming).

Pappert, N. and Quick, R. (2022), "The Effect of Pure Audit Firms, Non-Provision of Non-Audit Services to Audit Clients, and a Statutory Fee Schedule on Audit Quality Perceptions", *Working Paper (under review (second round) at: Journal of International Accounting Research)*.

Park, H.-j., Choi, J.-u. and Cheung, J. (2017), "Does Non-Audit Service Compromise Audit Quality?", *The Journal of Applied Business Research*, Vol. 33 No. 2, pp. 309–320.

Patel, C. and Psaros, J. (2000), "Perceptions of external auditors' independence: Some cross-cultural evidence", *The British Accounting Review*, Vol. 32 No. 3, pp. 311–338.

Peemöller, V.H. (2012), “Gebührenordnung für Abschlussprüfer – ein Ansatz zur Qualitätssicherung”, *WPK Magazin No.* 1, pp. 37–42.

Pinto, I. and Morais, A.I. (2019), “What matters in disclosures of key audit matters: Evidence from Europe”, *Journal of International Financial Management & Accounting*, Vol. 30 No. 2, pp. 145–162.

Pinto, I., Morais, A.I. and Quick, R. (2020), “The impact of the precision of accounting standards on the expanded auditor’s report in the European Union”, *Journal of International Accounting, Auditing and Taxation*, Vol. 40 No. 3, p. 100333.

Porter, B. (1993), “An Empirical Study of the Audit Expectation-Performance Gap”, *Accounting and Business Research*, Vol. 24 No. 93, pp. 49–68.

Porumb, V.-A., Zengin-Karaibrahimoglu, Y., Lobo, G.J., Hooghiemstra, R. and Waard, D. (2021), “Expanded Auditor's Report Disclosures and Loan Contracting”, *Contemporary Accounting Research*, Vol. 38 No. 4, pp. 3214–3253.

Professional Charter for Professional Accountants in Public Practice (2016), *Chamber of Public Accountants*, Berlin.

Quick, R. (2020), “The audit expectation gap: A review of the academic literature”, *Maandblad Voor Accountancy en Bedrijfseconomie*, Vol. 94 No. 1/2, pp. 5–25.

Quick, R., Gauch, K. and Pappert, N. (2021), “Nichtfinanzielle Berichterstattung zu den Umweltbelangen in den Geschäftsberichten der DAX-30-Unternehmen”, *Betriebs-Berater*, Vol. 76 No. 15, pp. 875–879.

Quick, R., Krones, L. and Pappert, N. (2021), “Maßnahmen zur Stärkung der Unabhängigkeit des Abschlussprüfers aus Sicht von Bankern”, *Der Betrieb*, Vol. 74 No. 49, pp. 2913–2918.

Quick, R., Krones, L. and Pappert, N. (2021), “Welche Maßnahmen zur Stärkung der Unabhängigkeit von PIE-Abschlussprüfern präferieren Aktionäre?”, *Zeitschrift für Recht und Rechnungswesen*, Vol. 31 No. 10, pp. 311–316.

Quick, R., Krones, L. and Pappert, N. (2022), “Maßnahmen zur Stärkung der Unabhängigkeit von PIE-Abschlussprüfern – Ergebnisse einer Befragung von Wirtschaftsprüfern”, *Die Wirtschaftsprüfung*, Vol. 75 No. 6, pp. 320–327.

Quick, R., Krones, L. and Pappert, N. (2022), “Stärkung der Unabhängigkeit von Non-PIE-Abschlussprüfern - Ergebnisse einer Befragung von Wirtschaftsprüfern und Aktionären”, *Zeitschrift für Corporate Governance*, Vol. 17 No. 1, pp. 25–29.

Quick, R. and Pappert, N. (2021), “Maßnahmen zur Regulierung der gesetzlichen Abschlussprüfung - Ergebnisse einer experimentellen Untersuchung”, *Board – Zeitschrift für Aufsichtsräte in Deutschland No.* 1, pp. 17–21.

Quick, R. and Pappert, N. (2021), “Transparenzberichterstattung des Abschlussprüfers”, *WiSt - Wirtschaftswissenschaftliches Studium*, Vol. 50 No. 1, pp. 13–18.

Quick, R. and Pappert, N. (2022), “Empirische Analyse der Transparenzberichterstattung deutscher Abschlussprüfer für die Berichtsperiode 2020/21”, *Die Aktiengesellschaft*, Vol. 67 No. 12, pp. 417–426.

Quick, R., Pappert, N., Friedrich, C. and Carlé, T. (2021), "Ähnlichkeiten und „Boilerplates" in der Berichterstattung über Key Audit Matters in den Bestätigungsvermerken der DAX-30-Unternehmen", *Betriebswirtschaftliche Forschung und Praxis*, Vol. 73 No. 5, pp. 461–478.

Quick, R., Pappert, N. and Gauch, K. (2021), "Praxis der nichtfinanziellen Berichterstattung zu Sozialbelangen und deren Prüfung im DAX-30", *IRZ - Zeitschrift für internationale Rechnungslegung*, Vol. 16 No. 5, pp. 239–243.

Quick, R., Pappert, N. and Meier-Scheuven, J. (2020), "Berichterstattung zu Forschung und Entwicklung in den Konzernlageberichten der Unternehmen im DAX und MDAX", *Der Konzern*, Vol. 18 No. 07/08, pp. 294–301.

Quick, R., Pappert, N. and Rose, J. (2023), "Zur Lesbarkeit von Key Audit Matters - Eine empirische Untersuchung zu den Bestätigungsvermerken der HDAX-Unternehmen", *Die Wirtschaftsprüfung*, (forthcoming).

Quick, R. and Schmidt, F. (2018), "Do audit firm rotation, auditor retention, and joint audits matter? – An experimental investigation of bank directors' and institutional investors' perceptions", *Journal of Accounting Literature*, Vol. 41 No. 1, pp. 1–21.

Quick, R., Toledano, D.S. and Toledano, J.S. (2020), "Erfüllen Abschlussprüfer die Erwartungen der Öffentlichkeit?", *Die Wirtschaftsprüfung*, Vol. 73 No. 15, pp. 867–873.

Quick, R. and Warming-Rasmussen, B. (2005), "The impact of MAS on perceived auditor independence-some evidence from Denmark", *Accounting Forum*, Vol. 29 No. 2, pp. 137–168.

Quick, R. and Warming-Rasmussen, B. (2009), "Auditor Independence and the Provision of Non-Audit Services: Perceptions by German Investors", *International Journal of Auditing*, Vol. 13 No. 2, pp. 141–162.

Quick, R. and Warming-Rasmussen, B. (2015), "An Experimental Analysis of the Effects of Non-audit Services on Auditor Independence in Appearance in the European Union: Evidence from Germany", *Journal of International Financial Management & Accounting*, Vol. 26 No. 2, pp. 150–187.

Rapoport, M. (2018), "How Did the Big Four Auditors Get $17 Billion in Revenue Growth? Not From Auditing; Consulting is now a cash cow for accounting firms, raising concerns about conflicts of interest", *The Wall Street Journal,* 7 April.

Ratzinger-Sakel, N.V.S. (2013), "Auditor Fees and Auditor Independence—Evidence from Going Concern Reporting Decisions in Germany", *AUDITING: A Journal of Practice & Theory*, Vol. 32 No. 4, pp. 129–168.

Ratzinger-Sakel, N.V.S. and Schönberger, M.W. (2015), "Restricting Non-Audit Services in Europe – The Potential (Lack of) Impact of a Blacklist and a Fee Cap on Auditor Independence and Audit Quality", *Accounting in Europe*, Vol. 12 No. 1, pp. 61–86.

Ratzinger-Sakel, N.V.S. and Theis, J.C. (2019), "Does considering key audit matters affect auditor judgment performance?", *Corporate Ownership and Control*, Vol. 17 No. 1, pp. 196–210.

Regulation (EU) No. 537/2014 (2014), *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: Regulation (EU) No. 537/2014*.

Reid, L.C., Carcello, J.V., Li, C., Neal, T.L. and Francis, J.R. (2019), "Impact of Auditor Report Changes on Financial Reporting Quality and Audit Costs: Evidence from the United Kingdom", *Contemporary Accounting Research*, Vol. 36 No. 3, pp. 1501–1539.

Reynolds, J.K. and Francis, J.R. (2000), "Does size matter? The influence of large clients on office-level auditor reporting decisions", *Journal of Accounting and Economics*, Vol. 30 No. 3, pp. 375–400.

Rogelberg, S.G. and Stanton, J.M. (2007), "Introduction", *Organizational Research Methods*, Vol. 10 No. 2, pp. 195–209.

Ruddock, C., Taylor, S.J. and Taylor, S.L. (2006), "Nonaudit Services and Earnings Conservatism: Is Auditor Independence Impaired?", *Contemporary Accounting Research*, Vol. 23 No. 3, pp. 701–746.

Ruhnke, K. and Schmidt, M. (2014), "The audit expectation gap: existence, causes, and the impact of changes", *Accounting and Business Research*, Vol. 44 No. 5, pp. 572–601.

Sawan, N., Alzeban, A. and Hamuda, K. (2013), "Perceptions of Auditing and the Provision of Non-Audit Services: Case Study in Libya", *International Journal of Business and Management*, Vol. 8 No. 14, pp. 168–181.

Schlüter, J.K.M. and Ratzinger-Sakel, N.V.S. (2021), "Standardisierung von Key Audit Matters?", *Die Wirtschaftsprüfung*, Vol. 74 No. 20, pp. 1270–1275.

Schmidt, F. (2019), *Die Wahrnehmung der Unabhängigkeit des Abschlussprüfers – Eine empirische Analyse für den deutschen Prüfungsmarkt*, Darmstadt.

Schmitt, J. (2019), "Wirtschaftsprüfung: So berechnet Baker Tilly die Honorare", *Finance Magazin,* 13 December, available at: https://www.finance-magazin.de/banking-berater/wirtschaftspruefer/wirtschaftspruefung-so-berechnet-baker-tilly-die-honorare-40374/ (accessed 8 November 2021).

Seebeck, A. and Kaya, D. (2022), "The Power of Words: An Empirical Analysis of the Communicative Value of Extended Auditor Reports", *European Accounting Review*, Vol. 10 No. 1, pp. 1–31.

Shamon, H. and Berning, C.C. (2020), "Attention Check Items and Instructions in Online Surveys: Boon or Bane for Data Quality?", *Survey Research Methods*, Vol. 14 No. 1, pp. 55–77.

Shockley, R.A. (1981), "Perceptions of Auditors' Independence: An Empirical Analysis", *The Accounting Review*, Vol. 56 No. 4, pp. 785–800.

Simnett, R., Carson, E. and Vanstraelen, A. (2016), "International Archival Auditing and Assurance Research: Trends, Methodological Issues, and Opportunities", *AUDITING: A Journal of Practice & Theory*, Vol. 35 No. 3, pp. 1–32.

Simunic, D.A. (1980), "The Pricing of Audit Services: Theory and Evidence", *Journal of Accounting Research*, Vol. 18 No. 1, p. 161.

Skinner, D.J. and Sloan, R.G. (2002), “Earnings Surprises, Growth Expectations, and Stock Returns or Don't Let an Earnings Torpedo Sink Your Portfolio”, *Review of Accounting Studies*, Vol. 7 No. 3, pp. 289–312.

Smith, K.W. (2021), “Tell Me More: A Content Analysis of Expanded Auditor Reporting in the United Kingdom”, *Retrived from SSRN*.

Svanström, T. (2013), “Non-audit Services and Audit Quality: Evidence from Private Firms”, *European Accounting Review*, Vol. 22 No. 2, pp. 337–366.

Swanger, S.L. and Chewning, E.G. (2001), “The Effect of Internal Audit Outsourcing on Financial Analysts’ Perceptions of External Auditor Independence”, *AUDITING: A Journal of Practice & Theory*, Vol. 20 No. 2, pp. 115–129.

Teoh, H.Y. and Lim, C.C. (1996), “An Empirical Study of the Effects of Audit Committees, Disclosure of Nonaudit Fees, and Other Issues on Audit Independence: Malaysian Evidence”, *Journal of International Accounting, Auditing and Taxation*, Vol. 5 No. 2, pp. 231–248.

Thornton, J.M. and Shaub, M.K. (2014), “Tax services, consequence severity, and jurors' assessment of auditor liability”, *Managerial Auditing Journal*, Vol. 29 No. 1, pp. 50–75.

UK Government Department for Business, Energy and Industrial Strategy (2021), *Restoring trust in audit and corporate governance: Consultation on the government’s proposals*, London.

van Liempd, D., Quick, R. and Warming-Rasmussen, B. (2019), “Auditor-provided nonaudit services: Post-EU-regulation evidence from Denmark”, *International Journal of Auditing*, Vol. 23 No. 1, pp. 1–19.

Velte, P. (2018), “Does gender diversity in the audit committee influence key audit matters' readability in the audit report? UK evidence”, *Corporate Social Responsibility and Environmental Management*, Vol. 25 No. 5, pp. 748–755.

Velte, P. (2020), “Associations between the financial and industry expertise of audit committee members and key audit matters within related audit reports”, *Journal of Applied Accounting Research*, Vol. 21 No. 1, pp. 185–200.

Vinson, J.M., Robertson, J.C. and Cockrell, R.C. (2019), “The Effects of Critical Audit Matter Removal and Duration on Jurors' Assessments of Auditor Negligence”, *AUDITING: A Journal of Practice & Theory*, Vol. 38 No. 3, pp. 183–202.

Watkins, A.L., Hillison, W. and Morecroft, S.E. (2004), “Audit quality: A synthesis of theory and empirical evidence”, *Journal of Accounting Literature*, Vol. 23, pp. 153–193.

Zeng, Y., Zhang, J.H., Zhang, J. and Zhang, M. (2021), “Key Audit Matters Reports in China: Their Descriptions and Implications of Audit Quality”, *Accounting Horizons*, Vol. 35 No. 2, pp. 167–192.

Declaration of Authorship

The dissertation is provided by me with a list of all sources used. I declare that I have written the thesis on my own – apart from the help explicitly mentioned in it.

The thesis has not been published anywhere else nor presented to any other examination board.

Die Dissertation ist von mir mit einem Verzeichnis aller benutzten Quellen versehen. Ich erkläre, dass ich die Arbeit – abgesehen von den in ihr ausdrücklich genannten Hilfen – selbstständig verfasst habe.

Die Arbeit wurde bisher weder einer anderen Prüfungsbehörde vorgelegt noch veröffentlicht.

Darmstadt, November 30, 2022

Nicolas Peter Pappert