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# The impact of external auditors on firms' financial restatements: a review of archival studies and implications for future research

Patrick Velte<sup>1</sup> 

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## Abstract

A systematic literature review includes 69 archival studies on the impact of external auditors on firms' financial restatements, based on principal agent theory. In more detail, we separate between auditor incentives and auditor competencies to supply a high audit quality. Financial restatements represent one of the most important proxies of audit quality in archival audit research, stressing an increased relevance in empirical research, business practice and regulatory initiatives. The review highlights that many studies on auditor incentives and competencies show inconclusive results on firms' financial restatements (e.g., fee and rotation studies). But there are indications that especially auditor expertise and audit firm size significantly decrease financial restatements. In discussing potential future research, we emphasize the need for a more detailed analysis of restatements proxies, controls for audit risk, inclusion of (corporate) governance mechanisms as possible moderators or mediators, and sustainability issues of the audit team.

**Keywords** Financial restatements · External auditor · Corporate governance · Restatements · Enforcement

**JEL Classification** M41 · M48 · Q56

## 1 Introduction

The Enron case and the scandal of Wirecard, one of the former “DAX 30” fin-tech group companies in Germany, are prominent examples of reduced trust in capital markets. While the US-American standard setter implemented the Sarbanes Oxley Act 2002, as a consequence of the Enron scandal, also the German

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legislator finalized a financial market integrity strengthening act (“FISG”) in 2021 after the Wirecard case. Currently, the European Commission has started an initiative on future reform measures on corporate governance, external audit and enforcement (EC 2021). Major regulatory discussions on strengthening audit quality will follow during the next months.

Due to this increased relevance of the topic, our literature review focusses on the external auditor as a key monitoring mechanism and we analyze whether auditors decrease the probability of firms’ financial restatements. Based on the research framework by DeFond and Zhang (2014), we separate between auditor incentives and auditor competencies to supply a high audit quality. In view of the wide range of audit quality variables, lack of comparability within respected studies and heterogeneity of prior results, our aim is to focus on the existence of firms’ financial misconduct as violations of national and/or international accounting and related business law regulations and standards. Thus, we make a clear distinction between financial misconduct and other financial reporting variables, as earnings management. This strategy increases the validity and comparability of included studies and the deduction of explicit research recommendations. Financial restatements represent one of the most important proxies of both audit quality and firms’ financial misconduct in prior research (e.g., Ahn et al. 2020). Other misconduct variables, e.g., enforcement actions, are not focused in this review in view of their low relevance yet (Markelevich and Rosner 2013). A variety of studies have been conducted to analyze the impact of auditors on firms’ financial restatements, showing heterogeneous results (Trompeter et al. 2013, 2014). Financial restatements are a significant threat for capital markets (Brody et al. 2012; Hammersley 2011) and the impact of external auditors should be analyzed in detail with the help of narrative literature reviews. As we are interested in the statistical relationship between external auditors and restatements, and we like to gain comparability within the included studies, we rely on archival studies. As the amount of other empirical research methods on that topic is rather low, we refer to archival studies as the dominant research method. Moreover, as archival audit research heavily relies on the US-American capital market and is mainly influenced by the Sarbanes–Oxley-Act (SOX) of 2002 (DeFond and Zhang 2014), we only include post-SOX-studies (starting with the business year 2004).

This leads to the following research questions of our literature review:

1. Do specific auditors’ *incentives* have an impact on firms’ financial restatements?
2. Do specific auditors’ *competencies* have an impact on firms’ financial restatements?
3. What are the main *limitations* of prior archival studies in this research field?
4. Which research recommendations can be formulated from a content and methodological perspective?

In the following, we stress the contribution and motivation of our study. We note an increased amount of literature reviews on firms’ financial misconduct in general (e.g., Zahra et al. 2005, 2007; Free 2015; Amiram et al. 2018; Sievers

and Sofilkanitsch 2019; Montesdeoca et al. 2019; Tutino and Merlo 2019; Albizri et al. 2019) and on related misconduct measures (e.g., Karpoff et al. 2017; Sellers et al. 2020). However, only few literature reviews concentrated on the impact of auditors on firms' financial misconduct. Hammersley (2011) has addressed auditor judgments in fraud-related planning tasks. Nieschwietz et al. (2000) and Hogan et al. (2008) conducted a literature review on auditors' detection of financial statement fraud before the SOX. Trompeter et al. (2013, 2014) presented an update of empirical studies in comparison to Hogan et al. (2008) in their 2013 study and integrated research from other disciplines in 2014. As we only include archival studies in this analysis, we mention the different aims of meta-analyses and structured literature reviews and our decision to conduct a literature review. Meta-analyses become more important during the last years also in audit research and intend to measure the overall statistical significance of a specific economic relationship, based on a conglomeration of single study results. Moreover, by the help of a meta-analysis, possible moderator and mediator variables can be tested statistically. Our intention is more focused on a narrative analysis of auditor-related determinants of firms' financial restatements and a detailed description and review of heterogeneous proxies. In contrast to meta-analyses, we are also interested in stressing explicit limitations in prior archival studies from a content and methodological perspective, and we like to guide future researchers with the help of explicit research recommendations for useful designs on firms' financial restatements.

We make the following main contributions to prior literature reviews on related topics. First, we rely on archival research (post-SOX) on the impact of auditor characteristics on firm's financial restatements, stressing the need for a specific literature review on this relationship. There is much debate whether the external auditor may have an impact on the occurrence of firms' financial restatements and we know very little about the main auditor-related determinants, similarities and differences of included proxies. Second, we clearly differentiate between auditor incentives and competencies to supply a high audit quality on the one hand, and explicitly focus on restatements on the other hand. Thus, we show a clear structure of prior studies and make a useful contribution to prior literature reviews on overall audit quality. We list and compare the various auditor and restatement variables and deduce limitations and recommendations for future research in order to guide researchers for future innovative designs.

Our review of 69 archival studies identifies major limitations and gaps in the audit-restatements-research and highlights key challenges that researchers face in their research designs. First, our review highlights that many studies on auditor incentives and competencies show inconclusive results on firms' financial restatements (e.g., fee and rotation studies). But there are indications that especially auditor expertise and audit firm size decrease financial restatements and thus increase financial reporting quality. However, financial restatements as the most prominent misconduct proxy are limited in their explanatory power, as restatements can be related to intentional or unintentional management behavior. Analyses on intentional misbehavior, e.g., on fraud events, are very rare in archival research due to their lower occurrence in business practice. We thus know very little about the impact of

auditors on fraud events from an archival perspective. In discussing potential future research, we emphasize the need for a more detailed analysis of restatements proxies, controls for audit risk, inclusion of (corporate) governance as possible moderators or mediators, recognizing sustainability issues in the audit team, and for an inclusion of other conduct measures (e.g., enforcement actions or fraud events). As the external auditor fulfils both an assistant function for the audit committee and a gatekeeper function for capital markets, the interaction between the auditor and other (sustainable) corporate governance issues should be analyzed in future archival research.

Our analysis is structured as follows: First, we present an agency-theoretical foundation and our auditor-related determinants of firms' financial restatements (Sect. 2). Next, we present the sample selection and the key results of our literature review, whereas we differentiate between auditor incentives and auditor competencies to supply a high audit quality (Sect. 3). Our analysis continues with a discussion of our results and research recommendations (Sect. 4). Section 5 provides a conclusion to our analysis.

## 2 Theoretical framework and measurements

### 2.1 Agency theory

Neoclassical economics theory assumes that an audit service is a type of economic good and, thus, is characterized as a typical supply-and-demand interplay in the audit service market (Habib et al. 2019b). According to principal-agent theory, external audit represents a monitoring and bonding tool for the management to increase public trust in financial accounting (Chow and Rice 1982; Habib et al. 2019a). The shareholders as the principals of corporations delegate parts of their monitoring duties to external auditors. In view of the investors' lack of time, limited professional resources and rational apathy in listed corporations (Watts and Zimmerman 1983), this strategy is needed. While the auditor is a gatekeeper for shareholders and other stakeholders (Kraakman 1986), he also supports the audit committee in supervising the executive directors (assistant role). As the auditor is also an economic agent (Antle 1982), he may impair his ability and freedom to make a sound assessment in line with clients' preferences. The agency problem of adverse selection may be linked with auditor's lack of qualifications on the one hand, or his bias towards the audited company on the other hand (Chow and Rice 1982; Habib et al. 2019b). Moreover, information asymmetries between top management, auditors and shareholders pose the risk of a moral hazard due to improper audits (shirking) and assessments (Velte and Loy 2018). There may be strong collaborations between auditors and management in contrast to the information needs of shareholders. Auditors may tolerate financial misconduct and grant an unqualified audit opinion (DeFond and Zhang 2014).

Information asymmetries and conflicts of interests should be reduced by ensuring high audit quality (Habib et al. 2019b). Audit quality is heterogeneously defined both in practice and in research. According to DeAngelo (1981), audit quality refers

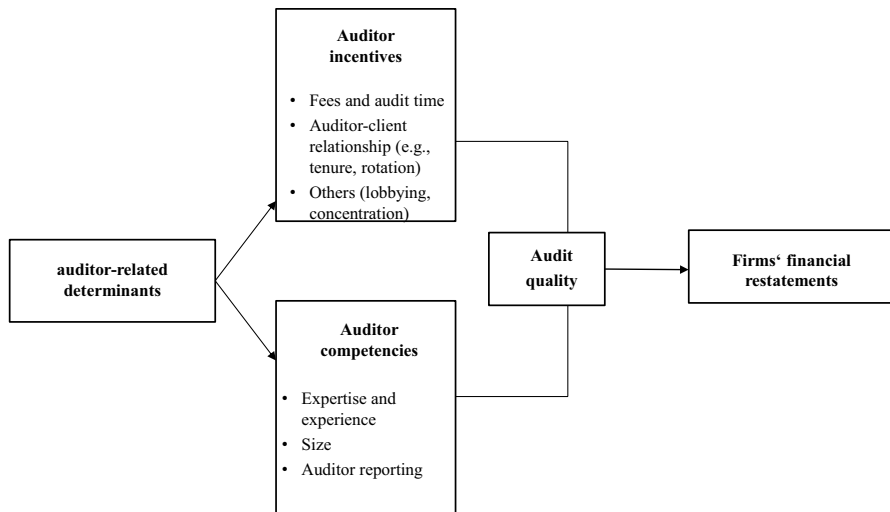
to the combined probability that the auditor will not only discover but also report material misstatements. The probability of the discovery and reporting of financial misconducts by the auditor is mainly influenced by this effort, knowledge and independence. The supply of high audit quality is a function of both auditors' incentives and competencies (DeFond and Zhang 2014). Market-based incentives include reputation and litigation concerns (Dye 1993) and refer to the first main group of determinants of audit quality (e.g., auditor independence). Auditor competencies are linked with the auditor's ability to deliver high audit quality, as reflected in factors such as inputs to the audit process, and audit expertise. The auditor as a main part of external monitoring should decrease opportunities of firms' financial misconduct, e.g., firms' financial restatements. High-quality auditors, therefore, are appointed to reduce the potential loss emanating from information asymmetry risk (Habib et al. 2019b).

(Inter)national auditing standards require auditors to provide reasonable assurance that financial statements are free from material misstatements, whether caused by errors (unintentionally) or fraud (intentionally). As the range of financial audits is limited to "reasonable" instead of a "full" assurance, the possibilities of auditors to prevent or discover financial misconduct are also restricted. High expectations by stakeholders led to an increased expectation gap with regard to auditors' responsibilities for detecting financial fraud. Forensic accounting methods are normally not included in "normal" financial audits. During the last few years, forensic detection modeling by advanced big data analytics, e.g., artificial intelligence or data mining, reaches great attraction in the (big four) audit profession (Tiwari and Debnath 2017). While it is very crucial that external auditors should guarantee a proper financial reporting quality, it is controversially discussed whether he is able to reduce the occurrence of firms' financial restatements as violations of the accounting standards significantly.

## 2.2 Audit-related measures

### 2.2.1 Auditor incentives to supply a high audit quality

Figure 1 gives an overview of our research framework on the relationship between auditors and firms' financial restatements. As auditor-related determinants, we differentiate between *auditor incentives* and *auditor competencies* to supply a high audit quality in line with DeFond and Zhang (2014). Figure 1 also depicts the main variables and proxies. The engagement of the auditor aims to counter litigation threats, e.g., through additional efforts, charging risk premiums or client retention. Auditors like to decrease the risk of material misstatement by increasing effort (Trompeter et al. 2013). This strategy implies increased *audit fees* or fee premiums if clients are willing to accept those fees. Audit fees represent one of the major audit proxies included in archival research (Widmann et al. 2021). This can be explained by prior meta-analyses on this topic (Hay et al. 2006). Two major reasons are apparent for this strategy. First, researchers like to analyse the competitiveness of audit markets, especially in light of the small number



**Fig. 1** Research framework on the link between external auditors and firm's financial restatements

of international service providers. Second, issues of contracting and independence related to the audit process (for example, low-balling, non-audit services) can be explained. Audit theory assumes that a high level of effort and services by the auditor will be mainly represented by high audit fees (Whisenant et al. 2003; Habib et al. 2006) as one of the key inputs to the audit process. In contrast, higher audit fees may also lead to an increased economic bond to the client and thus decreased independence and professional skepticism during the initial audit (Beck et al. 1988; Magee and Tseng 1990). As a summary, as audit fees also capture risk premia and improved audit efficiency, the positive relationship between audit fees and audit quality has to be questioned and should be analyzed individually. Auditor incentives to supply a high audit quality are also mainly linked with *auditor independence*. During the last years, profit margins of classical financial audits have been shrunk in view of a strong price competition (DeFond and Zhang 2014). Especially the Big four audit firms expand their efforts on profitable consulting services, e.g., implementation of non-financial reports or big data techniques. While *non-audit services (NAS)* create attractive payments between clients and auditors, the independence of the auditor and the possibilities to conduct a strict audit can be impeded (Velte and Loy 2018). In view of these risks, there are many legal restrictions on NAS and on disclosure of audit services and NAS in the notes by listed corporations. Regulators assume that litigation and reputation incentives are insufficient to maintain auditor independence in the case of NAS. While NAS may decrease auditor independence, “knowledge spillovers” between audit and non-audit duties are existent, leading to improved auditor competency and efficiency (Simunic 1984). Improved knowledge spillovers may outweigh the costs of reduced independence by NAS. *Audit (report) lag*, or audit delay, is closely related to audit fees. Audit report lag is defined as the number of days between the fiscal year-end date and the date of the audit opinion (Habib

et al. 2019b). Audit lag represents a measure of both audit effort, e.g., the time the auditor requires to complete the audit, and audit efficiency (e.g., Knechel and Sharma 2012). As the audit report contains the auditor's opinion regarding the credibility of the financial statements, shareholders and other stakeholders prefer short(er) audit report lags by tendency (Habib et al. 2019b). Thus, audit report lag may increase information asymmetries and conflict of interests between managers and the capital market.

Other variables of auditor incentives belong to the auditor–client-relationship. One of the major controversies is the length of *auditor tenure*. Regulators mainly criticize long-client tenure of auditors, as it may create familiarity with the firm that threatens auditor independence. Thus, many regulators discussed and finally introduced mandatory auditor and audit firm rotation. In line with NAS regulations, restrictions on auditor tenure are controversially discussed as it destroys client-specific knowledge and allows “opinion shopping” (Chung et al. 2019). Audit theory assumes that auditors have less client-specific knowledge in initial audits, and hence less competence in detecting firms' financial misconduct (DeFond and Zhang 2014). Regulators are also concerned that *market concentration*, mainly by the big four audit firms, may threaten audit quality there is a reduced competition, which fosters entrenchment and decreases auditor incentives to provide high quality (GAO 2003, 2008). However, market concentration may also improve audit quality, because client importance decreases and choices for opinion shopping are lower. While less researched, auditors may also attenuate litigation risk by *lobbying*, leading to decreased incentives to supply a high audit quality.

## 2.2.2 Auditor competencies to supply a high audit quality

*Auditor competencies* to deliver a high audit quality can be achieved by training, skills and expertise (DeFond and Zhang 2014). But there are many interdependencies between auditor incentives and auditor competencies. Greater incentives to supply audit quality will also motivate auditors to increase their competencies that facilitate high audit quality. Auditor competencies are mainly connected with auditor experiences and expertise. *Auditor industry specialization* represents one of the most relevant proxies in this context. This variable includes an audit quality differentiation at the intra-audit firm level (Stanley and DeZoort 2007). There will be an economic interest for auditors for more industry specialization if they perceive increased fees or market share from higher audit quality and economies of scale of these competencies. Literature assumes that industry specialists may supply a higher audit quality because of their superior knowledge of industry-related business models and reporting practices (Dopuch and Simunic 1982). According to Habib (2011), industry specialization supports audit firms to strengthen the demand for (non) audit services, increases audit efficiency through economies of scale, builds barriers to entry by requiring new entrants to invest significant resources in relevant industries, and influences client-relevant audit outcomes like audit fees and financial reporting quality. Stakeholders will trust more in audit reports by industry expertise of the external auditor in line with principal agent theory. In view of the increased reputational capital of auditor specialists, e.g., bank auditors, the incentives to deliver



high audit quality are more pronounced. Client industry expertise or concentration is mostly based on sales, size, fees, number of clients, or the Herfindahl index (DeFond and Zhang 2014). Thus, classifying auditors by some arbitrary market share rule, as (non) specialists, has been widely used in the literature with heterogeneous results. While the interpretation of specialization based on market and portfolio share is rather simple for researchers, this procedure bears the risk that this measure of industry specialization is biased (Habib 2011). Specialists are industry leaders or have a market share of at least 10–30%. As the big four audit firms dominate most industries from an international perspective, they are usually classified as national-level specialists. Thus, a strong link between audit firm size and industry expertise is existent. Literature states that specialist auditors have greater competencies and reputation incentives to provide high audit quality (DeFond and Zhang 2014).

In line with industry specialization, an increase amount of studies address whether large auditors, e.g., Big N membership, provide relatively higher audit quality. *Auditor size* as cross-sectional variation in audit quality is relevant because large auditors should have stronger incentives and greater competencies to provide high audit quality (DeAngelo 1981). Especially big four audit firms are expected to be more independent because they are connected with an increased reputation risk and less pressure to succumb to an individual client (“deep pockets”). As auditor size is also related to auditor incentives with regard to increased auditor independence, it also relates to auditor competencies. Big four audit firms gain economies of scale with a positive impact on auditor quality (Watts and Zimmerman 1983). Larger audit firms have the possibility to use better audit resources, e.g., human resources and expertise (Dopuch and Simunic 1982). In line with audit firm size, auditor office is also included in prior research, mainly related to big n office size. Literature states that larger audit offices have greater in-house expertise and are thus linked with increased audit quality (Francis et al. 2013).

Last but not least, auditor competencies refer to the quality of *auditor reporting*. Based on agency theory, the gatekeeper function of the auditor is directly linked with the audit opinion (Kraakman 1986). Especially shareholders request a reliable financial reporting, based on an informative audit reporting. Audit reports include key information about the going concern principle, internal control weaknesses and key audit matters. High quality audit reports are a main factor to analyze auditor competencies, as the auditor may give an unqualified opinion, while material financial misconduct was existent during the respective business year.

### 2.3 Measures of firms’ financial restatements

Firms’ restatements of financial statements represent the most important measure of firms’ financial misconduct in archival research (Karpoff et al. 2017). According to Sievers and Soflikanitsch (2019), restatements can be defined as firms’ acknowledgement of former reporting failures and correction of intentional and/or unintentional misreporting. Financial restatements can be a result of an error, fraud, or GAAP misapplication. Some restatements are thus fraud-related, while others are not. Most restatements (approximately 98%) refer to unintentional misreporting,

such as “mistakes” or “clerical errors” in contrast to “fraud” or “manipulation”. Restatements vary in misreporting severity (Sievers and Soflikanitsch 2019) and represent a well-suited indicator of malfeasance by the auditor when past misreporting goes undetected. Literature assumes restatements to be the most readily available indicator of low audit quality (Christensen et al. 2019). The majority of studies included in our literature review interpret financial restatements as an inverse measure of audit quality. However, restatements also depend on a successful detection and announcement of past reporting. Restatements may also indicate a strict audit in the past (Srinivasan et al. 2015). Pyzoha (2015) stated that top managers who face a high audit quality are more likely to agree with correcting prior financial statements. However, restatements are perceived and applied as a proxy for low audit quality in most cases because restatements are mainly linked with initial undetected misreporting rather than to a subsequent successful detection of misreporting. The US-American researchers heavily rely on two major databases for their restatement variable: the databases by the Government Accountability Office (GAO) and by Audit Analytics (AA) (Karpoff et al. 2017).

In contrast to financial restatements, the presence of fraud charges under regulatory enforcement actions (e.g., Karpoff et al. 2017) is another way to analyze firms' financial misconduct. In the USA, since 1982, the Securities and Exchange Commission (SEC) has issued Accounting and Auditing Enforcement Releases (AAER) during or at the conclusion of an investigation against a company, an auditor, or an officer for alleged accounting and/or auditing misconduct. The data is provided by the Center for Financial Reporting and Management (CFRM) at the University of Berkeley (Karpoff et al. 2017). Similar databases including enforcement actions also exist for other regimes, e.g., the China Stock Market and Accounting Research Database (CSMAR). As the amount of studies related to this proxy is rather low in comparison to financial restatements and we note a low comparability between these studies, we focus on financial restatements in the following.

In the following, we justify our focus on financial restatements in comparison to earnings management proxies, which represent another key variable of audit quality in archival research during the last decades. The main advantages of restatement proxies are that they are very direct and egregious measures of audit quality as the auditor erroneously issued a clean opinion on materially misstated financial reports (DeFond and Zhang 2014). Thus, restatements measure actual audit quality as an output of the audit process. In view of their discrete character with high homogeneity, the measure error is relatively low. According to DeFond and Zhang (2014), restatements represent “strong evidence of poor audit quality”. With regard to limitations of this proxies, an absence of a financial restatement does not imply proper audit quality. Solely egregious failures are recognized by restatements. Material misstatements by low quality audits may not be detected. Moreover, restatements are relatively rare, which decreases the statistical power and may lead to small sample sizes. Moreover, external auditors only provide “reasonable” assurance that financial reports are free of material errors.

Compared with restatements, earnings management proxies are less direct than restatements as the impact of external auditors on financial reporting quality is limited. Thus, accruals models and other prominent earnings management proxies are

less egregious than restatements. While most earnings management measures are continuous, we note a great variety of different proxies and high level of measurement errors (DeFond and Zhang 2014). Moreover, while audit quality is one component of financial reporting quality, there are other criteria to be recognized. In view of these circumstances, we do not rely on the various earnings management proxies, but focus on financial restatement proxies in this literature review.

### **3 Research on the impact of external auditors on firms' financial restatements**

#### **3.1 Sample selection and content analysis**

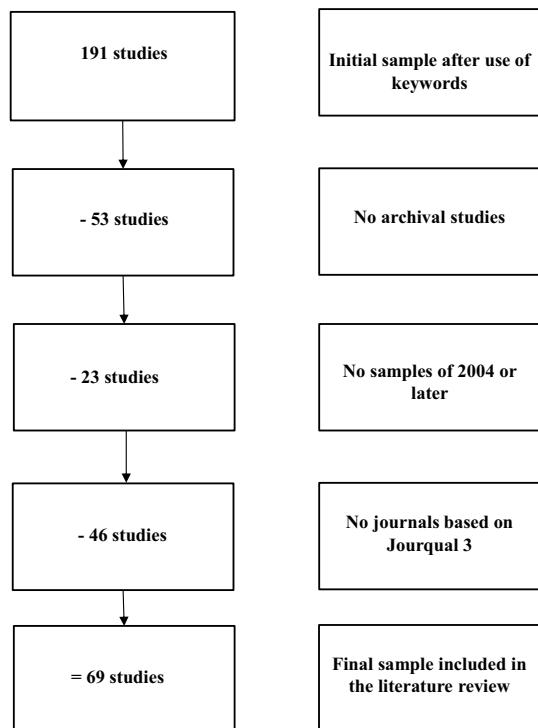
Empirical research on the link between auditors and firms' financial restatements is confronted with a heterogeneity of collected data, study designs, theoretical foundations, and analytical models. Literature reviews are an important and relevant research method for scholars, researchers and business practice. We rely on several international databases to select our studies included in this literature review practitioners, and regulators seeking to decrease research complexity (Torraco 2005; Webster and Watson 2002). Our literature review is based on established processes (Denyer and Tranfield 2009). We identify relevant studies for our analysis via a comparison of (inter)national databases (EBSCO Business Source Complete, Web of Science, Google Scholar and SSRN). These databases were searched for the terms "restatement", "manipulation", "error", "irregularity", "revision", "misconduct", "misreporting" and "misstatements". We additionally combined these terms with "accounting", "audit", "auditing", and "financial". This leads to an initial sample of 191 studies. We are interested in archival research as the most important research method on this topic and our aim is to gain an appropriate level of comparability within the included studies. We thus exclude 53 analytical, experimental, and qualitative papers. While there is a research dominance on the US-American capital market, there is no limitation on a special country. The reason for this decision is that recent studies also analyze the non-US environment, e.g., EU member states, Australia/New Zealand, or Asian regimes. After the passing of the SOX of 2002, several countries conducted similar studies, so that the SOX can be classified as an international catalyst for a global audit regulation initiative. Thus, only empirical studies whose sample covers the period after the commencement of the SOX 2002, and which use archival statistics have been included. The SOX rules that would have affected the variable examined in the studies were not effective for most companies until 2004. Insofar, all of the included studies should have samples of 2004 or later. Apart from the increased complexity of the findings, which necessitates a temporal limitation of the study inclusion, the increased regulatory density makes a comparison between US-based studies before and after the SOX impossible. Given that research is focused on the US-American capital market, the temporal limitation is adequate. This leads to a reduction of 23 studies. For quality assurance reasons, only the contributions published in international journals with double-blind review have been included. Moreover, we only include studies published in journals which are

included in the “Jourqual ranking 3” of the German association of university teachers for business administration. This resulted in a sample reduction by 46 papers to a final sample of 69 studies. Figure 2 presents a flow diagram on the sample selection process.

We coded the included studies according to the selected auditor-related (sub-) determinants of firms' financial restatements and match them to our research framework. We noted the significant findings and their indicators in line with vote-counting technique (Light and Smith 1971).

Table 1 provides an overview of the papers per publication year (Panel A), region (Panel B), journal (Panel C), content (Panel D), and theory (Panel E). Panel A reported a steady increase in studies over the last few years. The years 2019 and 2020 were most important year due to the amount of included studies (12 studies). This can be explained by the overall increased relevance of archival studies in audit and corporate governance research. But we also note, that the quality of databases on financial restatements, e.g., based on audit analytics as data source, has been increased during the few years. Most of the included studies focus on the US-American setting (47 studies) in comparison to other settings. As the US-American capital market is most attractive for empirical research and is characterised by strong regulation and homogeneous legal environment, this dominant setting in our literature review is not surprising. As the passage of the SOX (2002) was directly linked to external audit regulations and corporate governance (e.g., audit committees), the

**Fig. 2** Flow diagram of the sample selection process



**Table 1** Count of cited published papers*Panel A: by publication year*

Total: 69	2021: 4
	2020: 10
	2019: 12
	2018: 8
	2017: 7
	2016: 6
	2015: 3
	2014: 8
	2013: 3
	2012: 3
	2011: 3
	2010: 0
	2009: 1
	2008: 0
	2007: 1

*Panel B: by region*

Total: 69	Cross-country setting: 1
	USA: 45
	other regimes: 23

*Panel C: by journal*

Total: 69	Abacus: 1
	Accounting and Business Research: 2
	Accounting Horizons: 2
	Accounting Research Journal: 1
	Accounting, Organization and Society: 2
	Advances in Accounting, incorporating Advances in International Account- ing: 1
	Asia-Pacific Journal of Accounting & Economics: 1
	<i>Auditing: 12</i>
	<i>Contemporary Accounting Research: 12</i>
	European Accounting Review: 2
	International Journal of Accounting: 2
	International Journal of Auditing: 1
	International Journal of Engineering and Advanced Technology: 1
	Journal of Accounting and Econom- ics: 4
	Journal of Accounting and Public Policy: 2
	Journal of Accounting, Auditing & Finance: 6
	Journal of Business Research: 2
	Journal of Contemporary Accounting & Economics: 1
	Journal of International Financial Man- agement and Accounting: 1
	Managerial Auditing Journal: 31
	Review of Accounting Studies: 2
	Spanish Journal of Finance and Accounting: 1
	<i>The Accounting Review: 11</i>

**Table 1** (continued)*Panel D: by independent variable*

Total: 69

*Auditor incentives: 43**Auditor competencies: 26**Panel E: by theory*

69

*Principal Agent theory 60**no explicit theory mentioned 5**Other theories: 4*

SOX leads to a massive increase of archival research during the last decade. With one exception, we do not indicate any cross-country settings. This can be explained by massive country-related attributes, which may influence the impact of external auditors and financial restatements. International samples should explicitly include these factors, which decrease the validity of studies on the solely impact of external auditors in a specific country. Panel C illustrates that heterogeneity of the journal publications, regarding discipline and quality. The best-known publication outlets are for example, *Contemporary Accounting Research* (12 studies), *Auditing* (12 studies) and *The Accounting Review* (11 studies). As archival audit research is most popular in these US-based journals, including US settings, this dominance is also obvious. As seen in Panel D, studies exploring auditor incentives (46 studies) are dominant, compared to auditor competencies to supply a high audit quality (29 studies). One explanation may be the easier selection of audit-related proxies and the strong link to principal agent theory as incentive alignment. Moreover, as Panel E indicates, most studies choose *principal agent theory* as theoretical framework (62 studies). We also note few studies with no clear indication of theoretical foundation (8 studies) or other theories (5 studies, e.g., resource-based view or institutional theory). Most archival researchers on external auditors are rather disciplinary business researchers. Other theories from the management discipline or other sciences are not well introduced in US-American top journals in this field and decrease the motivation of researchers to increase the variety (theory bias problem). Thus, in the following section, we refer to agency theory as theoretical framework of our literature review (see also Habib et al. 2019a). We are aware of the critiques in literature that both managers and external auditors are not always opportunists, leading to a rather bad picture of their attitudes (Habib et al. 2019a).

## 3.2 Auditors' incentives and firms' financial restatements

### 3.2.1 (Non) audit fees, audit time and range

*Audit fees* represent one of the key variables, which have been included as auditor incentives to supply a high audit quality, leading to lower financial restatements. We already noted that audit fees can be linked with both increased and decreased audit quality due to either improved audit efforts and auditor dependence on the client. Prior research results confirm this heterogeneous relationship. Some researchers

found a positive relationship between abnormal audit fees and restatements (Files et al. 2014; Hribar et al. 2014). Others have reported a negative link (Blankley et al. 2012; Li and Ma 2020, based on a Chinese sample). According to Lobo and Zhao (2013), (abnormal) audit fees reduce annual restatements, but there is no influence on annual or quarterly restatements. Beardsley et al. (2019) analyzed audit fee pressure and documented a positive impact on restatements, especially in large audit offices. Ettredge et al. (2014) also found a positive relationship between these variables. There are no indications, that audit fee discounting in initial year audits influence firms' financial misconduct (Barua et al. 2020). Moon et al. (2019) reported that auditor premium fee, but not engagement premium fee, reduces financial restatements. Hoopes et al. (2018) analyzed audit personnel salaries at the associate, senior, and manager ranks for big four audit offices and found a negative impact on restatements. Lo et al. (2019), based on a Chinese sample of firms, reported that smaller staff-partner ratios reduce financial restatements. This relationship is weaker, when engagement partners have excessive workload. More recently, Pittman and Zhao (2021) found a positive link between audit fees and unfavorable non-income increasing misstatements.

In line with audit fees, we note an increased amount of studies on the link between *non-audit fees* and restatements. Compared to audit fees, empirical evidence is also heterogeneous. Non-audit fees can either increase (Campa and Donnelly 2016, based on a UK sample) firms' financial misconduct. Lisic et al. (2019) stated that non-audit fees and restatements are positively linked before the SOX and insignificantly connected after the SOX. According to Meckfessel and Sellers (2017), non-audit fees paid to big four audit firms increase accounting rules and errors, but there is no impact on fraud. Castillo-Merino et al. (2020) conducted a study on the Spanish audit market and found a positive impact of other non-audit fees and high concern restatements. Insignificant results were documented by Files et al. (2014). Some researchers also differentiated between specific subgroups of NAS to increase our knowledge about the impact on restatements. Tax consulting fees are very important in this context, as there are main synergies between consulting and audit in business practice. There is a long-time controversial discussion whether tax consulting fees should be restricted while conducting audit duties for the client. Seetharaman et al. (2011) reported that tax consulting fees only lead to reduced tax-related restatements, but not to lower general restatements. Paterson and Valencia (2011) found that recurring tax services decrease financial restatements. However, other NAS (non-recurring) lead to more restatements, while audit related services do not have any impact. A similar differentiation between several kinds of NAS was conducted by Wahab et al. (2014) in Malaysia. The authors reported a negative influence of recurring NAS, tax and audit-related services on restatements. Moreover, audit related and non recurring other NAS are moderated by non-politically connected firms.

In line with (non) audit fees, auditor incentives are mainly linked with *audit time and audit range*. Blankley et al. (2014) found that abnormal audit report lag, moderated by time pressure, increases financial restatements. Similar results were reported by Chan et al. (2016), based on a Chinese setting, and Files et al. (2014). Clients' financial statement deadline concentration leads to increased restatements, as

indicated by Czerney et al. (2019). According to Bhaskar et al. (2019), double audit as financial and internal control audit leads to higher firms' financial misconduct. Heo et al. (2021) introduced busy season audit as audit conducted under workload imbalance. The authors found a positive influence on restatements in Korea, while time spent by auditors during interim audits reduce restatements.

### 3.2.2 Auditor–client-relationship

(Non) audit fees are closely linked with the auditor–client-relationship, as an independent external auditor may be more successful in achieving adequate audit fees for their services. The auditor–client-relationship may influence auditor incentives to supply a high audit quality. In line with NAS, the literature controversially discusses whether *auditor tenure and rotation* leads to better audit quality. Many regulators from an international perspective already implemented mandatory auditor rotation rules and also stipulate audit firm rotation. Prior research results are rather inconclusive. Singer and Zhang (2018) found that audit firm tenure reduces timeliness of restatements, but increases their magnitude. According to Stanley and DeZoort (2007), for short tenure, auditor industry specialization and audit fees are negatively related with restatements. For long tenure, the authors found an insignificant relationship between non-audit fees and restatements. A recent study for the European audit market was conducted by Garcia-Blandon et al. (2020), indicating that audit firm tenure with both more than 10 years and 20 years does not influence firms' financial misconduct. Some studies also analyzed the impact of audit partner switch on restatement. Kuang et al. (2020) reported that (material) restatements are higher, but not their announcements, when mandatory audit partner rotation was recognized. According to Laurion et al. (2017), audit partner rotation increases both restatement discovery and announcement. Auditor switches at the restatement disclosure date lead to more 8-K restatements, as Irani and Xu (2011) found in their study. The timing of auditor changes in initial year of audit engagements also seems to be relevant. Cassell et al. (2020) documented that changes during or after the fourth quarter in comparison to earlier change and no change lead to more restatements. An auditor switch between the end of the misstatement period and the restatement announcement lowers financial misconduct (Files et al. 2014). Pacheco-Paredes et al. (2017) did not find any relation between auditor switches closer to the year-end and restatements. Chang et al. (2019), based on the audit market in Taiwan, analyzed whether clients following audit partners who switch audit firms will have more or less restatements. The authors did not find any relationship. However, opinion shopping increases financial restatements according to Chung et al.'s (2019) study. Audit firms that subsequently leave the market did not impact restatements (Fargher et al. 2018). Both audit market concentration, based on industry market share distance (Willekens et al. 2020) and political connections between auditors and clients (Burnett et al. 2018) lead to decreased firms' financial misconduct. More recently, Greiner et al. (2021) found a positive impact of auditor rotation as within-firm office changes to a smaller office and restatements.

*Personal ties between client and auditors* may also influence financial restatements in the future. School ties between signing auditor and client top executives



are positively related to downwards restatements (Guan et al. 2016). He et al. (2017) analyzed the Chinese audit market and found that social ties between engagement auditors and audit committee members increase restatements. This relationship is more pronounced by the audit committee chair, accounting background of audit committee members, identical provinces, reputational capital of the audit committee members and low corporate governance quality. According to Finley et al. (2019), employee movement from audit firms to client do not influence firms' financial misconduct. Moreover, shareholder voting on auditor selection decreases financial restatements (Dao et al. 2012).

### 3.2.3 Summary

Our literature review on *auditors' incentives* indicates that (non) audit fees and auditor tenure (rotation) studies represent the most important proxies in prior research on firms' financial restatements. Other proxies of auditor incentives, e.g., audit time (range) and auditors' networks, are of lower relevance yet. While (non) audit fees are dominant in prior research designs, the great heterogeneity of results stresses that the impact of (non) audit fees on firms' financial restatements is inconclusive and may be explained by conflicting effects or influenced by unobserved factors, e.g., firm risk or industry. Similar arguments can be transferred to audit tenure and rotation proxies in our literature review. We cannot find any clear hints that these variables may have a significant positive or negative impact on firms' financial restatements in total.

## 3.3 Auditors' competencies and firms' financial restatements

### 3.3.1 Auditor expertise and experience

Auditor competencies to supply a high audit quality are mainly linked with auditors' experience and expertise. Stanley and DeZoort (2007) found that *auditor industry specialization* is negatively related with restatements for short audit tenure engagement. Big four audit partner industry expertise is also negatively related to financial restatements on the audit market in Taiwan (Chin and Chi 2009). Ahn et al. (2020) analyzed auditor task-specific fair value expertise and documented a negative impact of level 3-related expertise, but not of level 2. According to Beck et al. (2019), geographic decentralization of audit firms negatively impacts firms' financial misconduct. This relationship is more pronounced by including the monitoring role and industry knowledge of the auditor. There are also indications, that auditor connectedness lowers the degree of restatements in Italy (Bianchi 2018). Gunn and Michas (2018) found restatements to be lower when local audit offices' expertise in conducting multinational audits is higher. However, this link is only evident by including moderator variables, e.g., clients with larger percentage of overall sales generated in foreign countries.

Auditor expertise can also be increased by *networks and M&A transactions* of audit firms. In a recent study, Donelson et al. (2020) found that the acquisition of

audit-related (non-audit-related) consulting firms by big four audit firms leads to lower (higher) restatements. Sun et al.'s (2020) study, based on the Chinese audit market, includes whether audit firms share the same auditor network among group-affiliated firms. The authors reported a positive impact on both downward restatements. Moreover, high audit quality is associated with use of specialist and firms that operate in industries that are more homogeneous. Non-Big N collaborations in association with other non-Big N auditors are also related to lower restatements (Bills et al. 2016a). However, international non-Big N network membership does not have an impact on misconduct in China (Mao et al. 2017). More recently, Domico et al. (2021) found a positive impact of foreign subsidiaries of US multinational firms' principal auditors' engagement of a component auditor and restatements.

MohammadRezaeia et al. (2018) recognized *audit firm ranking* in Iran and found a positive influence on restatements. Two studies also address gender diversity in audit firms as proxy of auditor competencies. While Lee et al. (2019) did not find a link between audit partner gender and financial misconduct, female auditors reduce restatements in the Spanish audit market (Garcia-Blandon et al. 2019).

We also recognize two studies on *litigation experiences and sanctions*. Lennox and Li (2014) reported a negative link between auditor's experience of litigation and restatements. This effect was even stronger on the audit office level, if offices were directly implicated in the litigation. In contrast to this, audit partner sanctions by authorities lead to increased restatements in Taiwan (Chang et al. 2016).

### 3.3.2 Audit office and firm size

Auditor experience and expertise have interactions with both *audit office and audit firm size* because audit office/firm size will have an impact on the supply of auditor experience and expertise. A typical example is the oligopoly by the 'big four audit firms' who centralize industry expertise, e.g., on financial institutions or insurances, and long-term experience on specific topics, e.g., big data technology or sustainability assurance.

Francis et al. (2013) found big four audit firm *office size* reduces restatements, but not non-big four audit office size. According to Newton et al. (2013), office size leads to decreased income-decreasing restatements, but there is no impact on income-increasing restatements. There are also indications that large office size of big four audit firms mitigate the positive impact of late filings on restatements (Cao et al. 2016). Bills et al. (2016b) found local audit office growth to be positively linked with firms' misconduct.

*Audit firm size* is mainly restricted to Big N membership. Prior studies found that restatements are lower if the audit firm belongs to the Big Four (Eshleman and Guo 2014) Big N (Files et al. 2014), or Big 10 audit firms (Fang et al. 2017). There are also indications that big four audits mitigate the positive impact of late filings on restatements (Cao et al. 2016). Jiang et al. (2015), based on a Chinese sample, found that Big 8 audit firm membership leads to lower restatements related to balance sheet and income statements, but not related to cash flow statements. Small US-auditors for US-listed Chinese firms were also related to higher restatements (Dang et al. 2017).

### 3.3.3 Auditor reporting

Audit office (firm) size and *auditor reporting* are characterized by interrelations, as more resources may be available to increase the quantity and quality of audit reports. Christensen et al. (2019) found that remediation for internal control weaknesses in the audit report increases the probability of financial restatements (Christensen et al. 2019). Czerney et al. (2014) analyzed auditor explanatory language in unqualified audit reports. The authors reported a positive influence on restatements, mainly driven by language that references the division of responsibility for performance of the audit, adoption of new accounting principles, and previous restatements. Fang et al. (2018) analyzed modified audit opinions that discusses related party transactions and reported a positive influence on restatement, related to a Chinese sample of firms. Wang et al. (2015) reported a positive link between audit opinions and restatements in China, whereas the relationship was moderated by engagement partner and client importance.

### 3.3.4 Summary

*Auditor competencies* are mainly measured by auditor industry expertise and networks, audit office/firm size and auditor reporting. While some proxies are inconclusive in their impact on firms' financial restatements, we note a clear tendency of a negative impact of both *auditor expertise*, based on auditor industry specialization, and *audit firm size* on firms' financial restatements. Thus, these quality drivers may increase the monitoring role of external auditors and put pressure on the managers to increase their financial reporting quality in line with stakeholders' information needs.

## 4 Discussion and future research recommendations

Referring to our main research questions in the introduction, due to many included studies in our literature review, there are no clear indications that both auditors' incentives and competencies have a significant impact on firms' financial restatements in general. Prior research results on this topic are rather inconclusive, leading to limitations and room for recommendations for future research. First, one reason for these inconclusive results may be the too narrow measurement of firms' financial restatements. In more detail, we know relatively little about auditors' impact on *different kinds of restatements*. In line with Sievers and Sofilkanitsch (2019), future research should differentiate between severe (intentional) and less severe (unintentional) restatements. Auditors may be more successful in preventing or detecting unintentional restatements in comparison to intentional ones. Newton et al. (2013) assume that auditors should be able to identify material and less material restatements and therefore include all restatements for the main analyses. But more severe errors can be hardly detected by the auditors. We recommend to differentiate between severe and less severe restatements separately for robustness checks (Meckfessel and Sellers 2017; Newton et al. 2013).

Restatements can be used as a proxy for both disclosures of prior reporting failure (restatement announcement) and misreporting (restated periods). Hoitash and Hoitash (2018) stressed a very heterogeneous use in the literature, which decreases the comparability of prior studies. For example, while Stanley and DeZoort (2007) rely on the restatement announcement year, Newton et al. (2013) refer to the restated years. Restatement type is also differently used in prior archival research (e.g., annual vs. quarterly, severe vs. less severe). As restatements can be an indicator of both high and low audit quality, we refer to the recommendations of Sellers et al. (2020). The authors assume that periods leading up to the beginning of misreporting could be classified low audit quality, as executives assess audit quality before they decide to misreport.

We also noted that *other firm's financial misconduct proxies* are rarely used, leading to our strategy to exclude these variables in our literature review due to comparability. We know very little about the relationship between auditors and *fraud events* in archival research in comparison to corporate governance variables. As fraud events are lower in comparison to restatement cases in business practice, researchers focused on financial restatements and related databases (Karpoff et al. 2017). We recommend future researchers to use multiple misconduct variables to increase the validity of archival research. An interesting question relates to the development of fraud probability scores before and after financial restatements. The relationship between earnings quality and restatements before and after the restatement events should be further analyzed. Changes in the F-score (Dechow et al. 2011) and the M-score (Beneish 1999) should be included as moderator or mediator variables in future archival research.

Our methodological recommendations also relate to *auditor-related determinants*. We like to stress *endogenous concerns* of auditor characteristics and financial misconduct in prior research (Irani et al. 2015). Irani et al. (2015) show that financial restatements have an effect beyond that of just affecting the restating companies; they also affect the reputation of the auditor involved with the restatement. A bidirectional link between external auditors and firms' financial restatements may be realistic. Auditors' incentives and competencies may also be the consequence of financial restatements in the past. However, this bidirectional relationship was rather neglected in prior research designs. Advanced analytical approaches, including dynamic regression models (Generalised method of moments [GMM] estimation), instrumental variable (IV) approaches or simultaneous equations models [SEM]) are relevant to recognize concerns in archival research due to reversed causality or omitted variables (Wintoki et al. 2012).

While there is an increased amount of studies, which analyze the impact of audit fees on firms' financial restatements, we see inconsistencies in *control variables*, e.g., control risk (Sievers and Soflikanitsch 2019). The literature states that financial restatements are positively associated with ex-ante internal control weaknesses (Rice and Weber 2012). As control risk is positively associated with audit fees, audit fees may be influenced by ex-ante risk for restatement firms. Moreover, if researchers include audit fees as a proxy for audit effort, it is crucial to control for non-auditor-related factors that may have an impact on audit fees (e.g., material weakness, earnings quality, or accounting complexity (Hoitash and Hoitash 2018)).

While prior research has also included corporate governance variables as main determinants of firms' financial restatements (Habib et al. 2021), we know very little about the *interdependencies between external auditors and other corporate governance* mechanisms. We already noted that auditors mainly support the audit committee, leading to a strong cooperation between both parties. This relationship should be extended by the internal audit function. We thus recommend to include board composition variables, e.g., independence and expertise of audit committee members, and their contribution to firm's financial misconduct in line with auditors' duties (Velte 2021a). It can be assumed that audit committee effectiveness, strong auditor incentives and competencies to supply a high audit quality may be classified as complementary mechanisms to reduce financial restatements. In line with board composition, we know very little about the interdependencies between auditors and shareholders on this research topic. Ownership structure, e.g., block holders, or institutional ownership, may have a strong impact on both auditor characteristics and managers' incentives to financial misconduct. Our recommendations are not only restricted on corporate governance, but are also related to country-related governance. We encourage future researchers to conduct cross-country studies and include country effects, e.g., strength of shareholder rights, enforcement strength or cultural aspects.

Audit quality is a latent variable, leading to a wide range of constructs, measures and perspectives. Many determinants used in earnings management research are missing in the restatement research. As financial restatements imply a violation of recent accounting regulations by top managers, we like to encourage future researchers to include sustainability proxies in their research designs. Ethics, gender and culture diversity within the audit team may be enrich our knowledge on the impact of external auditors on firms' financial restatements. Some fruitful research designs on earnings management may be easily transferred to financial restatements (e.g., Kung et al. 2019; Ittonen et al. 2013; Lai et al. 2018; Sun et al. 2016). Ethical behavior in both top management teams and audit teams may be an important factor in increasing financial reporting quality. Moreover, culture within the (audit) firm may have a major impact of managers' motivations to conduct misconduct.

## 5 Conclusion

This article includes a systematic review of archival research on the link between auditors and firms' financial restatements, based on an agency-theoretical framework. Principal agent theory assumes that the external auditor represents a major monitoring tool to detect and prevent firms' financial restatements (Habib et al. 2019a). This is in line with (inter)national auditing standards: the auditor must provide reasonable assurance that financial reporting is free from material misstatements. There is a controversial discussion whether stricter audit regulations are needed to decrease the probability of firms' financial misconduct (Habib et al. 2021). Yet, auditors' duties to prevent or discover financial restatements are limited, because traditional financial audits do not include forensic accounting methods (Tiwari and Debnath 2017). This leads to the expectation gap of the stakeholders.

Based on the recommendations by DeFond and Zhang (2014), we clearly differentiate between auditor incentives and auditor competencies to supply a high audit quality. We assume that auditor incentives and competencies will lead to lower firms' financial misconduct and thus increased audit quality. As financial restatements represents one of the most important audit quality and financial misconduct variables, we focus on this variable in this literature review. Our focus guarantees an appropriate comparability within included archival research and a more nuanced deduction of explicit research recommendations in this research field. We contribute to prior research on overall audit quality studies, as audit quality proxies are very complex in business practice and have a lack of comparability.

We deduce four main research questions in order to evaluate, whether certain proxies of auditors' incentives and competencies may have a major impact on firms' financial restatements. Then, based on the results of our literature review, our aim was to stress key limitations of prior research and give useful recommendations for future research. Our review of 69 archival studies indicates that many studies on auditor incentives and competencies show inconclusive results on firms' financial restatements (e.g., fee and rotation studies). But there are indications that audit expertise and audit firm size as auditors' competencies decrease financial restatements. Other included proxies are either too low in amount or too inconclusive to identify a tendency of research results. Thus, the impact of external auditors on financial restatements remains controversial. Based on limitations of prior research due to methodological and content issues, we give useful recommendations for future archival research on the link between auditors and firms' financial restatements. We include both content-specific and methodological suggestions. More specifically, we encourage future researchers to increase the validity of research designs due to inconclusive research designs. Restatement events should be better analyzed with regard to their nature. Future studies should include a mixture of financial restatements and other misconduct proxies (e.g., enforcement actions or fraud) and evaluate, whether corporate governance and earnings quality moderates or mediates the link between auditors and restatements. Methodological concerns also arise in the prior analysis of auditor-related determinants of firms' financial misconduct. Researchers should be more aware of the implementation of control risk variables in archival studies and of major endogeneity concerns within their research designs. Moreover, future researchers should include both corporate governance and country-related governance variables in their research design. In more detail, board composition, e.g., audit committees, and ownership structure have major interdependencies with external auditors' duties and motivations to detect financial misconduct of the firm (Velte 2021a). Finally, sustainability issues, e.g., ethics, gender and cultural diversity, in audit firm teams should be integrated in future studies on the impact on firms' financial restatements in line with prior research on earnings management. This may lead to an increased knowledge about the auditor-related determinants of firms' financial restatements.

This study has main implications for regulatory bodies and business practice. After the Enron scandal, the US-American government implemented the Sarbanes Oxley Act 2002, which leads to massive regulations on business reporting, corporate governance and external auditors. The famous Wirecard scandal in Germany also

leads to a financial market integrity strengthening act (“FISG”) in 2021. In line with the mandatory implementation of audit committees by PIEs, auditor independence was increased by stricter external rotation rules after 10 years and stricter separation of auditing and consulting duties. The German legislator has also mainly increased the liability regimes for external auditors in order to ensure a careful financial audit. A similar initiative by the European Commission was started by the end of 2021 as a reaction to the Wirecard scandal and other European scandals (EC 2021). There is a current controversial discussion, among others, whether the implementation and monitoring of anti-fraud-management systems by PIEs will be useful to increase the quality of corporate governance and auditing within the European capital market. We see a great challenge to analyze the impact of internal corporate governance systems, e.g., risk management and compliance management systems, on financial reporting and audit quality from an international perspective. However, future regulators should recognize internal auditors, audit committees and external auditors as a “golden triangle” of supervision and should strengthen their cooperation. Regulators also discuss recently, whether the “traditional” financial audit should be extended by forensic auditing tools in combination with modern instruments of big data tools (e.g., artificial intelligence). Non executives should implement adequate incentives for top managers to strengthen financial reporting quality and decrease intentional misreporting. Stricter legal rules cannot prevent financial scandals of the firm if corporate culture is unethical and leadership style of executive directors is questionable. Firms’ financial misconduct should be linked to corporate social responsibility (CSR) (Velte 2021b) and compliance management systems in the future.

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