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**Article (Accepted version)
(Refereed)**

Original citation:

Löhlein, Lukas (2016) *From peer review to PCAOB inspections: regulating for audit quality in the U.S.* *Journal of Accounting Literature*, 36. pp. 28-47. ISSN 0737-4607

DOI: [10.1016/j.acclit.2016.05.002](https://doi.org/10.1016/j.acclit.2016.05.002)

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Available in LSE Research Online: July 2016

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Accepted Manuscript

Title: From peer review to PCAOB inspections: Regulating for audit quality in the U.S.

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PII: S0737-4607(16)30028-3
DOI: <http://dx.doi.org/doi:10.1016/j.acclit.2016.05.002>
Reference: ACCLIT 23

To appear in:

Received date: 9-5-2016
Accepted date: 9-5-2016

Please cite this article as: Lukas Löhlein, From peer review to PCAOB inspections: Regulating for audit quality in the U.S., <http://dx.doi.org/10.1016/j.acclit.2016.05.002>

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From peer review to PCAOB inspections: Regulating for audit quality in the U.S.

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Abstract

This study reviews the existing literature on the U.S. peer review system and the Public Company Accounting Oversight Board (PCAOB) inspection system to assess our knowledge of audit regulation. The traditional self-regulatory system of the accounting profession came to an end, in 2002, when the PCAOB was established to oversee the audit firms of publicly traded companies. This paper contributes to the controversial debate about self-regulation versus independent regulation by analyzing, categorizing, and comparing the research findings on the peer review system and the PCAOB system along three dimensions: the validity of peer reviews and PCAOB inspections, the recognition of reviews and inspections by decision-makers (e.g. investors, bankers, committees), and the effect of reviews and inspections on audit quality. Synthesizing the research on the regulatory regimes suggests that the notion of external quality control, both through peer reviews and government inspections, is positively linked with an improvement of audit quality. At the same time, the analysis indicates that external users do not seem to recognise peer review and PCAOB reports as very useful instruments for decision-making, which is in line with an identified rather skeptical perception of the audit profession on reviews and inspections. Overall, this study reveals that although the academic literature on peer review and PCAOB inspection is extensive it has not produced definitive conclusions concerning various aspects of audit regulation. This paper shows how this blurred picture is due to conflicting research findings, the dominance of the quantitative research paradigm, and unchallenged assumptions within the literature, and concludes by proposing research opportunities for the future.

Keywords: Public Company Accounting Oversight Board (PCAOB), Inspection, Peer review, Quality assurance, Self-regulation, Accounting history, American Institute of Certified Public Accountants (AICPA)

1. Introduction

Peer reviews and government inspections are basic instruments for restoring trust in auditing by securing audit quality through tackling perennial problems in corporate financial reporting. The two modes of external audit quality control aim at assessing whether audit firms have developed appropriate quality control policies and procedures, and whether these are implemented in compliance with professional accounting and auditing standards. They consist of an assessment of selected audit engagements and an evaluation of a firm's internal quality control system. Although external quality assurance is only one element of the broader notion of audit regulation it is, in particular, the way in which a system of external quality control is organized, implemented, and overseen that determines whether the regulatory system achieves its goal of protecting the interests of investors and the public (Carcello, Hollingsworth, & Mastrolia, 2011; Francis, Andrews, & Simon, 1990; Palmrose, 2013).

Controlling audit quality through external assessments became a decisive topic in audit regulation when the American Institute of Certified Public Accountants (AICPA) initiated an intra-professional peer review programme for its member firms, first voluntarily, later mandatorily in the 1980s. However, when, in a series of corporate frauds, the accounting profession failed to meet the social expectations of ensuring the faithful representation of the state of companies such as WorldCom and Enron, trust in professional-self regulation broke. To restore the belief in financial reporting, Congress passed the Sarbanes-Oxley Act (SOX) in 2002, which replaced the traditional self-regulatory system with a system of public oversight, making SOX the most important corporate-governance legislation since the Securities Acts in the 1930s (Boster, 2007; Church & Shefchik, 2012). Although the Act led to a variety of fundamental changes in financial reporting, the introduction of mandatory governmental inspections was the most significant one; it was the “the fundamental tool Congress gave to the Board to restore public confidence in audited financial reporting” (PCAOB chairman Goelzer, 2005, p. 1).¹ Given the U.S. transition's significant influence on audit regulation on the global regulatory landscape, it is important to review the effects of the PCAOB and to assess whether the transition was successful, and, if so, in which aspects.²

A substantial number of papers have been published over the last quarter of a century on the subject of audit regulation. This paper contributes to the controversial debate about public oversight versus self-regulation by reviewing and synthesizing the academic literature about the profession's peer review system and the current PCAOB system. The study incorporates the findings on the former AICPA peer review system and contrasts them with research results on the current PCAOB system, as only the direct evaluation and comparison of self-regulation and profession independent regulation allows the drawing of conclusions about the legitimacy of one regulatory regime over another. A better and holistic understanding of the different systems seems to be necessary for future reforms and to decrease the risk of

¹ To release the PCAOB from the administrative burdens of a federal agency (Coates IV, 2007; Gradison & Boster, 2010), it was formally established as a private entity. Nevertheless, the PCAOB is perceived as a “quasi-public” entity (Boster, 2007, p. 135) as the fact that the PCAOB is “anything other than governmental has never even been contested” (Gradison & Boster, 2010, p. 10).

² As a direct response to the establishment of the PCAOB, other countries reformed their legal system by introducing public oversight systems (Canning & O'Dwyer, 2013; Caramanis, Dedoulis, & Leventis, 2015; Löhlein, 2016; Malsch & Gendron, 2011).

producing politically unintended and potentially dysfunctional consequences. As such, this study extends prior assessments of the regulation of public company auditing in the U.S. (Abernathy, Barnes, & Stefaniak, 2013; Glover, Prawitt, & Taylor, 2009; Kinney, 2005; Palmrose, 2013).

The categorizing of the literature is based on a framework that assesses the legitimacy of each of the two regulatory regimes in three ways: firstly, it analyses whether peer reviews and PCAOB inspections yield valid results; secondly, it considers whether peer reviews and inspection results were used in financial decision-making; thirdly, it assesses the effect of peer reviews and PCAOB inspections on the level of audit quality. The multiple findings of each particular research study were unbundled and arranged according to the three aspects of the developed framework. The sources of this study were articles in accredited journals and working papers. Relevant papers were identified by searching the databases (e.g. Business Source Premier, EBSCOhosts, Emerald Management eJournals, and Jstor databases) with the following keywords: peer review, PCAOB inspection, self-regulation, AICPA, Public Company Accounting Oversight Board, regulation, Sarbanes-Oxley Act, enforcement, audit quality. In addition, the reference section of each study was reviewed to detect papers not identified during the initial database search, leading to an overall total of 47 studies that form the basis for this analysis.

The remainder of this paper is structured as follows. The next section outlines the framework for categorizing the research findings and describes the historical development from a professional peer review system to the current PCAOB inspections. In the next two sections the research findings on peer review and on PCAOB inspections are separately analyzed, followed by a comparison in the subsequent section. This is followed by an outline of identified research gaps and concluding remarks.

2. Organizing framework

To compare the peer review with PCAOB inspections, it is necessary to be clear about the relevant benchmark. In audit regulation there has never been much agreement concerning the assessment of mechanisms regulating the audit profession (Mautz, 1984). The consequence is disunity, due to methodological and conceptual problems of identifying assessment measures as well as disputes on who should determine and define them (Arens, Elder, & Beasley, 2011; Sutton & Lampe, 1991). The organizing framework for this paper emerged inductively as a result of the analysis of the scientific research on the peer review system and the PCAOB inspections. It is based on three aspects that dominate the scientific debate on audit regulation: the validity of peer reviews and inspections, the recognition of peer reviews and PCAOB inspections, and their effect on audit quality.

2.1. Validity of peer reviews and PCAOB inspections

Peer reviews and inspections are perceived as pivotal mechanisms to improve and maintain a high level of audit quality. To this end, reviews and inspections must be objective and based on reliable information, evaluation, and justification. Paraphrasing DeAngelo (1981), reviewers and inspectors have to be able *and* willing to discover a deficiency in an audit engagement or a breach in the quality control system of an audit firm. The relationship between expertise and independence has always played a particular role in the debate on audit regulation: prior literature has argued that the shift from peer reviews to PCAOB inspection represents a trade-off of expertise for independence (e.g. Carcello et al., 2011; DeFond, 2010; Palmrose, 2006). This interpretation results from the perception of inspectors as being more independent than reviewers, whereas a higher level of technical knowledge and experience is

generally attributed to the latter (Bellovary & Mayhew, 2009; DeFond, 2010; Grumet, 2005). Hence, the technical knowledge and the degree of independence of a reviewer and inspector determine what is defined in this framework as validity of external quality control. The first component along which the research studies are categorized is therefore stated in the following research question:

RQ1: Do peer reviews and inspections lead to valid results?

Insights about the validity of peer reviews and PCAOB inspections were found in a variety of research approaches. Some studies have examined whether there is evidence for a relationship between reviewer characteristics and review findings (Colbert & Murray, 1998; Wallace, 1991), or whether review and inspection results are biased by the information advantage of reviewers and inspectors (Emby, Gelardi, & Lowe, 2002; O’Keefe, King, & Gaver, 1994). Other studies have drawn conclusions on the validity of the results from a comparison of peer review and PCAOB reports about the same firm (Anantharaman, 2012; Ragothaman, 2012). Moreover, the analysis of the responses of audit firms to review and inspection outcomes (Bishop, Hermanson, & Houston, 2013; Blankley, Kerr, & Wiggins, 2012; Church & Shefchik, 2012; Wallace & Cravens, 1994), and surveys gauging opinions on peer reviews and inspections (Daugherty & Tervo, 2010; Ehlen & Welker, 1996; Newman & Oliverio, 2010), allowed further conclusions about the validity of the systems.

2.2. *Recognition of peer reviews and inspections in decision-making*

Research has shown that financial market participants reward companies that employ high-quality auditors (Barton, 2005; Knechel, Krishnan, Pevzner, & Stefchik, 2013). A necessary condition, however, is that the audit quality among audit firms can be differentiated. Therefore, the second component of the framework addresses whether market participants use the results of peer reviews and inspections as surrogates for audit quality. The second component along which the research studies are categorized is therefore stated in the following research question:

RQ2: Do financial markets recognise peer reviews and PCAOB reports as useful instruments for decision-making?

Empirical studies have shed light on this question by analyzing the variability in audit fees (Francis et al., 1990; Giroux, Deis, & Bryan, 1995) and by examining the number of clients that the audit firm gained or lost (Daugherty, Dickins, & Tervo, 2011; Hilary & Lennox, 2005; Lennox & Pittman, 2010). In other studies, questionnaires and surveys (Alam, Hoffman, & Meier, 2000; File, Ward, & Gray, 1992; Schneider & Ramsay, 2000; Woodlock & Claypool, 2001), and experimental designs (Payne, 2003; Robertson & Houston, 2010; Robertson, Stefaniak, & Houston, 2014; Wainberg, Kida, Piercey, & Smith, 2013) have been used to reveal whether financial experts recognise peer review and PCAOB results as being useful for decision-making. Common to these studies is that the analysis of the informative value of peer review and inspection results allows conclusions to be drawn on the *perceived* level of audit quality. The effect of peer reviews and inspections on *actual* audit quality is the focus of the third component of the framework.

2.3. *Effect of peer reviews and inspections on audit quality*

Any legitimate regulatory system must be able to meet the goals of regulation. Although the SOX introduced multiple regulatory changes, it is in particular the PCAOB inspection programme which is seen as the primary vehicle for improving overall auditing quality (Boster, 2007; Carcello et al., 2011; Church & Shefchik, 2012). Thus, the third component along which the research studies are categorized is therefore stated in the following research question:

RQ3: Do peer reviews and inspections improve audit quality?

Empirical work on the association between external quality assurance and audit quality is hampered by the lack of observable measures of audit quality. In other words, much of the difficulty in assessing the external quality control instruments for improving audit quality is related to the “elusiveness of the concept itself” (Alam et al., 2000, p. 410). Nevertheless, conclusions about the effect of external quality controls on audit quality were identified in various research studies. Empirical work on the former peer review system has applied alternative evaluation methods to assess whether reviewed firms provide higher audit quality than non-reviewed firms (Deis & Giroux, 1992; Krishnan & Schauer, 2000; O’Keefe et al., 1994; Rollins & Bremser, 1997). In contrast, research on the PCAOB inspections has used audit client-specific measures to evaluate the extent to which inspection contributes to audit quality (Abbott, Gunny, & Zhang, 2013; Carcello et al., 2011; Gramling, Krishnan, & Zhang, 2011; Gunny & Zhang, 2013; Offermanns & Peek, 2011). Other studies have researched the effect of inspections on the composition of the audit market (DeFond & Lennox, 2011), or have directly asked financial experts about the effect of peer reviews and PCAOB inspections on audit quality (Blankley et al., 2012; Daugherty & Tervo, 2010; Felix & Prawitt, 1993; McCabe, Luzi, & Brennan, 1993; Newman & Oliverio, 2010).

The next section describes how, in four major steps, the notion of external quality assurance has been transformed from a core feature of the professional self-regulatory understanding into a highly regulated and (quasi-)governmental affair.

3. Regulatory Background: from AICPA peer reviews to PCAOB inspections

3.1. The emergence of peer reviews

Since the mid-1960s external audit quality control has been a central element in the debate on maintaining and enhancing audit quality, as questions about the performance, the credibility, and the role of audit firms began to rise when the collapse of large national companies caused huge losses to investors and heightened congressional concern for the safety of customer funds (Federal Committee, 1976a). As a result of several disciplinary actions by the Securities and Exchange Commission (SEC), large accounting firms organized sporadic firm-on-firm reviews (Fogarty, 1996; Sperry, Spede, & Hicks, 1987). The debate about audit quality came back in 1973 when detection of massive accounting frauds at Equity Funding and Penn Central came under serious attack in Congress. The Subcommittee on Oversight and Investigation (Federal Committee, 1976a) criticized the self-regulatory framework of the AICPA for insufficiently serving the public interest, and regarded the SEC’s “hands-off approach” concerning the organization and supervision of the accounting profession as insufficient to protect public investors (Federal Committee, 1976a, pp. 31, 83). Another investigation, the Subcommittee on the Accounting Establishment (Federal Committee, 1976b) went as far as to demand the introduction of an inspection programme under “the General Accounting Office, the SEC, or a special audit inspection agency,” (Federal Committee, 1976b, p. 22) because the regulatory setting was perceived as inadequately designed. Although the proposal did not find a political majority, it was obvious

that the AICPA had to respond to these controversies to secure opinion leadership on external quality assurance and to restore public trust in professional self-regulation. To this end, the AICPA created the AICPA Division for CPA Firms in 1977, to implement and to organize a voluntary peer review programme (Giroux et al., 1995).

3.2. The voluntary peer review system from 1977 to 1988

The AICPA Division consisted of two sections that administered the peer review programme: the SEC Practice Section (SECPS) for all firms that audited at least one SEC client, and the Private Companies Practice Section (PCPS) for all the other firms.³ Membership in the Division was voluntary, but participating firms had to undergo a peer review at least every three years and were required to adhere to the AICPA's quality control standards (Loscalzo, 1979; Sperry et al., 1987). However, due to the voluntary nature the review programme never attracted a critical mass of practice units. The profession's rejectionist stance on the system became an issue when several cases of fraudulent financial reporting and corporate failures (e.g. Drysdale Securities, Washington Public Power Supply System, Baldwin-United) put the profession (once again) under defence, yielding severe intra-professional debates on whether the participation in peer review should become mandatory for AICPA member firms.⁴ Peer review became a divisive topic for the auditing community, pitting small audit firms that opposed it against larger firms that supported it (Berton, 1986). The latter became indirectly supported by SEC, which threatened the profession with the launch of a government inspection programme if the profession continued to reject obligatory peer reviews. This caused the AICPA to start broad-based lobbying actions among the profession. After the first vote, the profession rejected the introduction of a mandatory peer review system; in the second vote in January 1988, AICPA members eventually adopted changes to close the gap between those firms that had voluntarily participated in a peer review and those which had not (Russell & Armitage, 2006, p. 47).

3.3. The mandatory peer review system from 1988 to 2002

As a condition of a firm's membership in the AICPA, the reform required firms to enroll either in the AICPA Division of CPA Firms (and then to become subject to a peer review either in the SECPS or in the PCPS) or to enroll in the newly created AICPA Quality Review Program (QRP) that operated under the direction of a senior AICPA committee (Ehlen & Welker, 1996).⁵ The procedures of the QRP and the SECPS were similar and were designed as a compliance test to ensure the appropriateness of an audit firm's quality systems. Audit firms could choose to be reviewed by a team which was assembled by the AICPA, or private CPA association, or a review team where all members belonged to another audit firm, the latter being chosen in more than 90 percent of the cases (Gunny & Zhang, 2006). The only major difference was that the results in the SECPS were available for the public, whereas the contents of the QRP's reviews were kept confidential. The fact that for non-SEC accounting firms two similar but separate peer review programs were in operation, and overall three programs existed, caused confusion both among AICPA members and the public (AICPA

³ To oversee the SEC Practice Section, the AICPA also established a Public Oversight Board (POB), composed of profession-independent public servants (Zeff, 2003, p. 201).

⁴ Already the Subcommittee on the Accounting Establishment had criticised that a voluntary peer review system would contain deficiencies that would undermine the objective of improving the performance and credibility of the accounting profession (Federal Committee, 1976b, p. 114).

⁵ From 1989, audit firms with public company clients were required to join the SECPS (Russell & Armitage, 2006, p. 47).

1995; Elsea & Stewart, 1995). Thus, in 1995, the QRP and the PCPS were merged into the AICPA Peer Review Program.

Although peer review became mandatory for AICPA member firms in 1988, quality assurance still remained a core feature of professional self-regulation. The fundamental transition from self-regulation to public oversight was then executed within just a couple of months when, between autumn 2001 and spring 2002, a wave of revelations of accounting fraud at Enron, WorldCom, and other large U.S. companies eroded the trust in the functioning of self-regulation. Both Enron and WorldCom were audited by Arthur Andersen, which received an unmodified peer review conducted by Deloitte & Touche in the same year (Mason, 2005, p. 6). This pulled the rug out from under the credibility of the peer review system, resulting in an outcry from the public for the political actors to “do something” (Mulford & Comiskey, 2011, p. 423). Within that political tsunami, Congress passed SOX in 2002, which replaced self-regulation by one statutory regulation, overseen by PCAOB “to protect the interests of investors and further the public interest in the preparation of informative, accurate, and independent audit reports” (SOX Sec. 101 (a)).⁶

3.4. PCAOB inspections from 2002

All auditing companies with publicly traded securities in the U.S. must be registered with the PCAOB. They are thereby subject to the PCAOB’s oversight system (SOX Sec. 102 (a)), which performs its work through the development of audit standards, the registration and inspection of public accounting firms, and the enforcement and investigation process in cases of violations of laws and the PCAOB’s rules. The PCAOB distinguishes between annual and triennial inspections: audit firms with more than 100 clients are inspected every year, firms with 100 or fewer clients are inspected every three years (SOX Sec. 104 (b)). PCAOB inspections examine a firm’s work on the selected audit engagement and the firm’s quality control system (SOX 104 Sec. 104 (d)). Broadly, the inspection process covers a wide spectrum of activities, from the evaluation of an audit firm’s tone-at-the-top, partner compensations, and compliance with professional codes of conduct for the proper application of audit procedures and documentation, to assessing the appropriateness of the audit evidence collected (Glover et al., 2009). For every inspection, the PCAOB prepares an inspection report (SOX Sec. 104 (g)), however, weaknesses in an audit firm’s quality control system are only published if the firm fails to address these deficiencies within one year. If no violations of the PCAOB’s rules or standards are identified, the inspection process ends with the disclosure of the report.

In the next sections, the research findings on the former self-regulatory peer review system and the current PCAOB system are categorized and analyzed along the framework, and finally compared.

4. Analysis of the AICPA Peer Review System

4.1. Validity of AICPA peer reviews

As outlined, the degree of independence and expertise of a review and inspection team determine the validity of the external quality control. Wallace (1991) was the first to research whether the results of peer reviews were affected by the reviewer’s degree of independence

⁶ As a result of SOX, the AICPA restructured its peer review system into the AICPA Peer Review Program (PRP), which focuses on the auditing practices of audit firms for non-public clients (Gramling & Watson, 2009). Many audit firms are therefore today subject to PCAOB inspections as well as AICPA’s peer reviews (Bellovary & Mayhew, 2009).

from the reviewed audit firm. Independence was operationalised, classifying the reviewer into three main categories: an AICPA-appointed review team, firm-on-firm arrangement, or an association-sponsored review team. Because no significant relationship was found between the type of reviewer and peer review outcomes, the study concluded that peer reviews provided valid and reasonable results. More recent studies, however, have conflicted with the results of Wallace.

Hilary and Lennox (2005) and Anantharaman (2012) provided evidence that reviewing firms were more likely to issue unfavorable opinions if they were a direct competitor of the reviewed firm, whereby the local distance between the two firms served as proxy for competition. Anantharaman showed that firms that chose their reviewers were more likely to obtain more favorable peer reviews compared to firms which were reviewed by a review team composed by the AICPA. In addition, the study demonstrated that experienced reviewers were more likely to issue unfavorable review reports than less experienced reviewers. Lennox and Pittman (2010) examined whether an audit firm was more likely to switch to another reviewer if its previous peer review outcome was cautious or adverse. This strategic reviewer change by audit firms would be consequential to the revealed relationship between a specific reviewer and review outcome (Wallace, 1991). Indeed, the findings indicate that audit firms were more likely to switch to another reviewer if their previous peer review opinions were modified or adverse. In this sense, the peer review programme caused audit firms to strategically select their reviewers as the type of reviewer had a considerable effect on the outcome of the review.

The information advantage of a reviewer over an audit firm was identified by King, Welker, and Keller (1994) and Emby et al. (2002) as another factor affecting the validity of a peer review. They found that reviewers were unable to disregard outcome knowledge in the peer review process, which led to biased peer review results. King et al. (1994) showed that the allegation of lack of independence of the audit firm negatively affected the reviewer's assessment of the audit quality of the firm under review. This ultimately resulted in less favorable review results. Emby et al. demonstrated that auditors who knew about a specific negative outcome rated outcome-consistent evidence items as more important while positive outcome information did not appear to affect the evidence evaluation of the reviewers.

Although the majority of research findings provide evidence that the validity of peer reviews was impaired for several reasons, the accounting profession had an opposing view. Ehlen and Welker (1996) documented that audit firms had a positive perception of their reviewers. The profession's satisfaction with peer reviewers can also be seen in the study of Wallace and Cravens (1994) and their analysis of statements by reviewed firms. Based on a descriptive analysis of response letters to the AICPA, the study concluded that the majority of the reviewed firms accepted the proposed suggestions from the reviewers. Taking the different studies together, an interesting picture emerges: while the accounting profession publicly emphasized that the peer review system worked effectively in terms of improving audit quality (Ehlen & Welker, 1996; Wallace & Cravens, 1994), it seems that accounting firms actively took advantage of the existing loopholes in the system (Hilary & Lennox, 2005; Lennox & Pittman, 2010).

Table 1 provides an overview of empirical studies with findings concerning the validity of the peer review system.

4.2. Recognition of peer reviews for decision-making

The literature on the recognition of peer review results can broadly be divided into two strands: quantitative archival research and research designs with a focus on individual participants. Archival research used different indicators for the reaction of the financial

market to analyze whether peer review outcomes were used and perceived as a quality-differentiating factor (Francis et al., 1990; Giroux et al., 1995; Hilary & Lennox, 2005). The first insights about the market's reaction to review results was provided by Francis et al. (1990). They hypothesized that in the case of perceived quality differentiation among audit firms, peer reviewed firms would charge higher audit fees. However, they did not identify audit fees as being associated with participation in the (at that time) voluntary peer review system. Giroux et al. (1995) extended the study to the public sector audit market. In contrast to Francis et al. (1990), they found that firms that had been reviewed positively were able to charge significantly higher audit fees. This was explained by the specific characteristics of the public sector audit market, which was characterized as having a high level of competition and a broad range of low-quality audit suppliers. Hilary and Lennox (2005) used the changes in the number of clients as being indicative of the audit market's awareness of peer reviews, as, in their sample, reviewed firms that achieved clean opinions gained clients whereas firms given modified opinions lost clients. The authors concluded that peer reviews were able to provide credible information to audit clients and that the audit market reacted to the information provided by peer review reports.

The second broad research strand examined the perceptions and attitudes of individual actors (e.g. individual investors, clients of audit companies) towards peer review (Bellovary & Mayhew, 2009; Deis & Giroux, 1992; File et al., 1992; Schneider & Ramsay, 2000; Woodlock & Claypool, 2001).

File et al. (1992) asked bankers and auditors for their opinion on the influence of several factors on their judgment of an auditor's credibility. The findings support Francis et al. (1990) because the study identified peer review reports as having the least influence on financial judgments, compared to firm size and industry expertise. Similar results were found in the study by Schneider and Ramsay (2000), in which bank lending-officers executed an ex-post evaluation of audit quality. The authors found that peer reviews did not directly affect the willingness of the bank lending-officers to approve lines of credit. This is consistent with Woodlock and Claypool (2001), who revealed that almost two thirds of the audit committees of public companies did not consider peer review reports when recommending an audit firm to the management of a company. In line with these results, Bellovary and Mayhew (2009) used an experimental research design to show that peer review reports did little to enhance the quality of investment choices.

Surveys among audit firms about the perception of their stakeholders towards review reports revealed a similar and critical attitude from audit firms. In the survey of Elsea and Stewart (1995), over 90 percent of CPA firms doubted that their clients were interested in their review results and only 20 percent believed that companies referred to review results when selecting a CPA firm for auditing services. Consequently, not even half of the firms used their reviews as promotional or marketing instruments. Similar results were revealed in a survey study by Ehlen and Welker (1996), in which a large majority shared the opinion that their client firms did not seem to care about the reviews. Interestingly, in both surveys, accounting firms that had been conducting reviews for a longer period of time were less critical than auditors who had just begun to work as peer reviewers, which might suggest that experiencing a review reduced the initial negative attitude towards it.

Payne (2003) identified the timeliness of a report's issuance as a factor which could explain the financial market's disinterest for review results, as found by the majority of studies (Alam et al., 2000; Ehlen & Welker, 1996; Elsea & Stewart, 1995; File et al., 1992; Francis et al., 1990; Schneider & Ramsay, 2000; Woodlock & Claypool, 2001). He assumed that the ability of an audit firm's client to deduce audit quality from the peer review findings decreased as the time between peer reviews increased. In fact, the results of his experiment indicate that a one-year review period, in contrast to the three-year review period at that time,

would have allowed clients to identify high-quality auditors. This is consistent with a survey by Russell and Armitage (2006), in which audit firms stated that a three-year cycle provided a two-year window for performing substandard work. The peer review's complexity was identified as an alternative and/or additional explanation by Alam et al. (2000), who showed that review experts questioned the investment community's ability to understand the underlying procedures and mechanisms of a peer review process, and suggested this could lead the investors to disregard review results in decision-making processes.

Table 2 provides an overview of empirical studies with findings concerning the perception and recognition of peer reviews in financial decision-making.

4.3. Effect of peer reviews on audit quality

As outlined in the framework, the third aspect of categorizing the research focuses on the link of peer review and audit quality. To draw conclusions about the peer review system's effect on audit quality, various studies have used alternative audit quality measures, and analyzed reviewed audit firms in comparison with non-reviewed firms (Casterella, Jensen, & Knechel, 2009; Deis & Giroux, 1992; Krishnan & Schauer, 2000; Rollins & Bremser, 1997). Deis and Giroux (1992) compared the peer review findings for small CPA firms, which were auditing school districts, with the findings of external quality controls conducted by the Audit Division of the Texas Education Agency, and concluded that peer reviewed audit firms performed higher-quality audits. Rollins and Bremser (1997) analyzed whether certain audit firm characteristics were related to enforcement actions against the auditor. In fact, the logistic regression model showed that peer reviewed firms were less likely to receive SEC sanctions than non-reviewed audit firms. Krishnan and Schauer (2000) used the level of compliance with Generally Accepted Accounting Principles (GAAP) as being indicative of audit quality. They examined the financial statements of various companies to evaluate whether the required accounting disclosures had been made in different areas. They found that the statements of peer reviewed firms complied more with GAAP than those of non-reviewed audit firms. Casterella et al. (2009) associated audit quality with the occurrence of litigation or claims of malpractice against an audit firm, and revealed that the number of weaknesses identified in peer review reports was associated with audit failure.

Instead of an alternative audit-quality measurement, Giroux et al. (1995) used audit fees as proxy for audit quality. The study showed that peer reviewed audit firms charged significantly higher audit fees. As no fee differences were identified on a per-hour basis, the authors concluded that higher fees correlate with more extensive audit procedures, which in turn indicate a higher level of quality audits.

The empirical findings which demonstrated the peer review's positive effect on audit quality were supported by Grant, Bricker, and Shiptsova (1996), who modeled auditing as a multi-person social dilemma. In a series of laboratory experiments, they showed the difficulty of obtaining a high level of average audit quality in a setting with no external quality controls, whereas audit quality increased in a peer review system.

In contrast, Alam et al. (2000), O'Keefe et al. (1994), and Shafer, Morris, and Ketchand (1999) neglected the positive link between peer reviews and audit quality. Similarly to Krishnan and Schauer (2000), O'Keefe et al. analyzed the compliance with GAAP. They found that the participation in peer reviews was not significantly related to violations. Shafer et al. (1999) questioned whether adverse peer review opinions were viewed as deterrents to aggressive reporting decisions. In an experiment, professional auditors were asked to estimate the likelihood of a material misstatement being detected as a result of a peer review. Most of the participants stated that the effect of peer reviews was marginal, leading the authors to

conclude that peer reviews did not provide adequate incentives for firms to reduce the incidence of financial statement misstatements. Alam et al. asked audit firms, audit clients, financial analysts, and bankers to rank the importance, and evaluate the effectiveness, of different aims of the peer review programme. The results show that the peer review instrument was not perceived as an adequate instrument for reducing audit failures and detecting audit fraud in financial statements; additionally, however, the peer review programme was identified as an important means to maintain professional self-regulation.

Surveys among audit firms that participated in peer reviews provided similar results. Although there was a generally positive orientation towards peer reviews, audit firms questioned the program's contribution to audit quality (Ehlen & Welker, 1996; Felix & Prawitt, 1993; McCabe et al., 1993). In the survey of McCabe et al. (1993), almost all respondents reported that peer reviews increased a firm's ability to comply with professional standards. At the same time, almost half of the respondents doubted that peer review improved the likelihood of detecting material misrepresentation. The negative view concerning the association between peer review and delivered audit quality is consistent with the findings of Felix and Prawitt (1993). In their study, only one third of respondents reported positive changes in their audit practices as a result of peer review. This revelation is also supported by the study of Ehlen and Welker (1996), in which more than one third of reviewed firms in the Division for CPA Firms and almost two thirds of firms reviewed in the QRP described the review process as more "cosmetic" than "substantial".

Russell and Armitage (2006) identified several loopholes within the peer review system which might explain the profession's skeptical view of the system's effect on audit quality. The authors showed how particular aspects of the systems allowed audit firms with defective quality control systems to successfully pass a review process. Through a questionnaire, reviewed firms were asked whether they used actions that were defined as potential loopholes. Almost half of the audit firms responded that they worked on selected engagement documents before these were submitted to the reviewer. One fifth of the firms were furthermore able to self-select the engagement subject for review and the majority selected cases with a low risk of receiving negative peer review comments.

Table 3 provides an overview of empirical studies with findings on the effect of peer reviews on audit quality.

5. Analysis of the PCAOB Inspection system

5.1. Validity of PCAOB inspections

Research that was concerned with the validity of PCAOB inspections focused almost exclusively on questions concerning the technical skills and knowledge of PCAOB inspectors (Blankley et al., 2012; Glover et al., 2009; Houston & Stefaniak, 2013; Newman & Oliverio, 2010). Glover et al. (2009) found individual cases in which inspectors failed to look at the riskiest areas of an audit, or drew incorrect conclusions, due to the technical complexity or their lack of prior experience in the specific field of engagement. Blankley et al. (2012) were then the first who analyzed the comments of the audit firms on the inspection reports. The inspection results were classified as "deficient", "severely deficient", and "pervasive failure" reports. Most firms with engagement deficiencies disagreed with the inspections and stated that the critical findings were the result of inadequate documentation and/or the incorrect application of accounting principles by the inspectors, and that they did not indicate genuine audit deficiencies. Studies highlight that in particular the audit firms with detected deficiencies showed high levels of disagreement with the competencies and technical knowledge of the inspectors (Blankley et al., 2012; Newman & Oliverio, 2010), whereas

generally PCAOB inspectors were perceived as knowledgeable, competent, fair (Newman & Oliverio, 2010), and appropriately prepared (Daugherty & Tervo, 2010). Compared to peer reviewers, Ragothaman (2012) demonstrated PCAOB inspectors to be “tougher”. She compared the non-remediated weaknesses in the quality control system of triennially inspected audit firms with quality control weaknesses identified in peer review reports. The comparison revealed that PCAOB quality reports disclosed a higher number of weaknesses regarding engagement performance and independence than were detected by modified and adverse peer review reports. However, it has to be noted that the absence of an overall grading of the PCAOB reports creates serious methodological problems: depending on whether the study used modified or unmodified AICPA peer reviews as the unit of comparison, entirely different results occurred.

While these studies analyzed triennially inspected audit firms, Church and Shefchik (2012) also included data from the Big Four firms in their analysis. They found that the Big Four disagreed more frequently with PCAOB findings than second-tier firms. Houston and Stefaniak (2013) then extended prior research by focusing on experienced partners from large and annually inspected audit firms, and by then reporting the perceptions of the partners about PCAOB inspectors and Internal Quality Reviews (IQRs). In the study, a majority of partners believed that, relative to IQR, PCAOB inspectors had an inferior understanding of the audit methodologies of the firms and that the feedback from PCAOB inspectors was less helpful for improving audit quality than IQR feedback.

Table 4 provides an overview of empirical studies with findings concerning the validity of the PCAOB inspection system.

5.2. Recognition of PCAOB inspections for decision-making

Research has revealed the reaction of financial markets to PCAOB reports, in particular, in two ways: firstly, empirical studies have tested whether PCAOB reports are associated with client changes (Abbott et al., 2013; Daugherty et al., 2011; Lennox & Pittman, 2010) or with a movement in the stock price of the clients (Offermanns & Peek, 2011); secondly, experimental studies have focused on the evaluations and interpretation of PCAOB by financial experts (Robertson & Houston, 2010; Robertson et al., 2014).

Lennox and Pittman (2010) analyzed the association between the number of weaknesses (none, one, or many) in PCAOB reports and the changes in the number of clients. Studies on the association between PCAOB reports and client changes (Abbott et al., 2013; Daugherty et al., 2011; Lennox & Pittman, 2010) are based on the assumption that, to evade market-imposed penalties (e.g., higher costs of capital), public companies dismiss audit firms with deficiencies. They therefore expected a relevant increase, or decrease, in market share in terms of clients for firms receiving favorable, or unfavorable, reports. However, as no significant relationship was found, the study concluded that an audit firm’s market share is insensitive to PCAOB inspection reports. As their data consisted of triennially inspected firms, the three-year inspection cycle could be the reason because it creates a barrier that isolates high-quality auditors from low-quality providers, as revealed by Payne (2003) and Russell and Armitage (2006) in their studies on the peer review system. Another explanation could be seen in the way the template of the PCAOB reports is composed. In contrast to the former review system, which used predefined result categories (unmodified, modified, and adverse opinion), PCAOB reports do not provide users with a concluding and overall grading. Hence, it is not surprising that 76 percent of audit firms with no-deficiency reports would prefer the PCAOB to introduce an overall measure of audit quality (Newman & Oliverio, 2010).

However, the findings of several other studies show that PCAOB outcomes are recognized for financial decision-making by the financial markets (Abbott et al., 2013; Daugherty et al., 2011; Offermanns & Peek, 2011; Robertson & Houston, 2010, p. 20). Daugherty et al. (2011) pointed out that deficiency reports were positively associated with dismissal of audit firms by their clients. In addition, the analysis shows that companies that dismissed audit firms with deficiencies were more likely to hire an audit firm with clean reports.⁷ Abbott et al. (2013) came to the same result. They examined the association between GAAP-deficient reports and changes in the number of clients. The authors found that triennially inspected audit firms were more likely to be dismissed by their clients compared to audit firms without identified GAAP deficiencies.

Robertson and Houston (2010) and Offermanns and Peek (2011) also found evidence for the financial market's perception of PCAOB reports. Robertson and Houston demonstrated that, under certain conditions, PCAOB reports can serve as a tool for signaling the credibility of audit opinions. They categorized deficiencies into "low-severity" deficiencies (failures that do not materially affect the financial statements) and "high-severity" deficiencies (failures that increase the probability that an audit will fail to detect a material misstatement). Then, financial experts were asked on a nine-point Likert-type scale to state their opinions about the ability of the inspection reports to positively affect the credibility of a firm's future opinions. Overall, participants believed that PCAOB inspections improve the credibility of future audits. Offermanns and Peek found that shareholders are sensitive to the information contained in PCAOB inspection reports and that they view the reports as a meaningful signal of audit quality to investors. The researchers analyzed the reaction of stock price movements of the clients of the audit firms to 224 first-round and 134 second-round PCAOB inspection reports issued between 2005 and 2010. They demonstrated that the magnitude of market response to issuance of inspection reports corresponded to about 29 percent of market response to earnings announcements.

With the exception of the findings of Lennox and Pittman (2010), the majority of empirical research indicates that financial markets are sensitive to PCAOB inspections. However, from a methodological point of view, the absence of an overall assessment hampers the cross-study comparison. Studies on the PCAOB regime use different approaches to categorize PCAOB reports into "good" and "bad". While several studies consider all identified deficiencies to be of economically equivalent importance and classify the reports according to the number of deficiencies (Hermanson, Houston, & Rice, 2007; Lennox & Pittman, 2010; Offermanns & Peek, 2011) or the rate of deficiencies (Daugherty et al., 2011), other studies distinguish between the kind of deficiency (Abbott et al., 2013) or between the degree of severity of the inspected deficiencies (Blankley et al., 2012; Robertson & Houston, 2010).

Another critical aspect is highlighted by Wainberg et al. (2013) and Robertson et al. (2014), who point out the risk of misreading the PCAOB reports. Wainberg et al. asked experienced managers to make an auditor engagement decision on the basis of the PCAOB inspection reports for the audit firms. It appears that auditors continued to focus on anecdotal deficiencies and failed to consider the implications of the statistical data provided in the reports. The importance of embedding findings into a statistical context was also recognized by the PCAOB. In the PCAOB's first years, PCAOB reports into large accounting firms did not provide users with statistical information that would allow them to assess the relative frequency of the detected deficiencies, which made the assessment of the quality of the

⁷ However, the study did not find evidence that non-remediated quality control deficiencies (made public if they have not been solved within a period of 12 months) lead to a loss of audit clients, which conflicts with multiple studies (Hodowanitz & Solieri, 2005; Lennox & Pittman, 2010; Newman & Oliverio, 2010) that have criticised the PCAOB's policy of keeping findings of the quality control system under lock.

reports hardly possible. Following criticism concerning the informative value of the PCAOB reports, the PCAOB has added statistical information to all of its reports since 2010. While Wainberg et al. offered insights into how the way in which the inspection results are presented (statistical vs. anecdotal) can shape the perception of users, Robertson et al. demonstrate how the content can influence decision makers. In an experiment with corporate executives, they showed how negative information in the reports had a stronger effect on the judgment of the financial experts concerning the credibility of the audit firm than did the positive information, indicating that PCAOB reports gave rise to a perception that was actually worse than reality.

Table 5 provides an overview of empirical studies with findings concerning the perception and recognition of PCAOB inspections in financial decision-making.

5.3. Effect of PCAOB inspections on audit quality

The first insights about the effect of PCAOB inspections on audit quality were delivered by studies which focused on audit market composition. They showed how PCAOB inspections pushed “low-quality” auditors out of the market, which was interpreted as an increase of overall audit quality (Daugherty et al., 2011; DeFond & Lennox, 2011; Hermanson & Houston, 2008; Read, Rama, & Raghunandan, 2004). Read et al. (2004) demonstrated that small audit firms were much more likely to cease performing SEC audits in the post-SOX period than in previous periods due to the perception of a more stringent oversight by PCAOB. According to Hermanson and Houston (2008) this was particularly the case for small audit firms, as the research data shows that firms that inadequately addressed their quality control defects were among the smallest firms in terms of partners and employees per client. The vast majority of quality control defects were thereby related to audit performance issues, followed by independence, monitoring and addressing identified weaknesses, partner workload, and review of interim financial statements.

The effect of PCAOB inspections on small auditors was also revealed by DeFond and Lennox (2011). The study indicates that from 2002 to 2004 almost half the small audit firms left the audit market. The exiting firms were of relatively low quality in terms of the total number and severity of weaknesses detected in inspections. The study used the likelihood of firms being issued with going-concern opinions as being indicative of audit quality, thereby determining that exiting firms did in fact belong to the group of low-quality audit firms. The underlying assumption of studies using the frequency of going-concern opinions being indicative of audit quality (Gramling et al., 2011; DeFond & Lennox, 2011; Gunny & Zhang, 2013) is that that low-quality audit firms are more likely to yield to the pressure of their client, and therefore issue fewer going-concern opinions.⁸ The result was supported by Daugherty et al. (2011), who found that deficiency reports caused involuntary and voluntary client losses. The figures show that low-quality audit firms voluntarily resigned from their clients because the costs associated with regulatory compliance outweighed the benefits of auditing publicly traded companies. Several other studies have later followed the approach of DeFond and Lennox and have utilized client-specific measures of audit quality, such as the frequency of going-concern opinions (Gramling et al., 2011; Gunny & Zhang, 2013) or the quality of earnings management (Carcello et al., 2011), to determine whether PCAOB

⁸ An alternative explanation is that the change in going-concern reporting decisions indicates an increased level of competence brought to the reporting decision.

inspections affect the quality provided by audit firms. The results point out the positive effect of PCAOB inspections on audit quality.

Gramling et al. (2011) based their analysis on inspection reports of triennially inspected audit firms from 2004 to 2006. They showed that audit firms with deficiency reports were more likely to issue going-concern opinions for financially distressed clients after their inspection than prior to their inspection, providing evidence of the PCAOB inspection positively changing audit firm behavior. In contrast, Gunny and Zhang (2013) did not find a correlation between inspection outcome and the propensity to issue going-concern opinions. However, Gunny and Zhang also used abnormal accruals and restatements as an indication of audit quality. This is based on the idea that higher-quality audit firms are more likely to limit management's accounting policy choices, thereby reducing earnings management, than are low-quality audit firms. The authors grouped the PCAOB reports into three categories and matched the clients to each triennially inspected auditor. The figures showed that low-audit-quality audit firms were positively associated with firms receiving a seriously deficient inspection report.

In contrast to going-concern opinions, Carcello et al. (2011) used earnings management as a proxy for audit quality. A company's financial statements are seen as a joint product of the company's management and the audit firm, therefore the use of earnings management as a proxy for audit quality is based on the assumption that the reduction of earnings management is an (indirect) outcome of an improvement of an accounting firm's audit quality. They compared the financial statements of Big Four's clients over the 12-month period before the issuance of the inspection report and the 24-month period subsequent to the issuance of the inspection report. A significant decline was found in accruals following each of the first and the second PCAOB inspections. Thus, the study showed that PCAOB is an effective instrument for reducing earnings management.

Studies that have surveyed audit firms have revealed the positive attitude of the profession concerning the system's effect on audit quality (Daugherty & Tervo, 2010; Newman & Oliverio, 2010). The findings suggest that small and large accounting firms evaluate the inspections differently. Whereas smaller firms do not agree with the statement that the inspection process has affected their audit services, large firms feel inspections have positively affected their audit business. Congruently, smaller firms do not agree that PCAOB inspections have improved overall audit quality, whereas larger firms view inspections as a positive contributor to audit quality (Daugherty & Tervo, 2010). Not surprisingly, the majority of firms with no reported deficiencies believe that the system contributes positively to the actual quality. Interestingly, although firms responded that, after having implemented reforms following their first inspection round, they received a no-deficiency report in their second inspection, still more than two thirds would prefer a five-year inspection cycle to a three-year one (Newman & Oliverio, 2010).

Table 6 provides an overview of empirical studies with findings on the effect of PCAOB reports on audit quality.

6. Results

The first question for which the literature was analyzed was whether reviews and inspections lead to valid results. The analysis indicates that the former peer review system was mostly criticized for its perceived lack of objectivity—only one study did not make this observation. In contrast, multiple studies revealed that the outcome results were significantly affected by the characteristics of the reviewing firm, representing a loophole that audit firms used to strategically change their reviewer after unfavorable review outcomes. Research studies that analyzed the effect of PCAOB inspection team characteristics on inspection

results could not be identified (see also Section 7). With respect to the question whether the review's and inspection's validity was hampered by a lack of expertise and technical knowledge, it can be concluded that the review system was highly accepted and reviewers were seen as competent. For PCAOB inspections, Big Four firms disagreed more frequently with the findings than smaller firms did. However, as only two studies directly asked audit firms about their opinion on PCAOB inspectors, and neither integrated the view of audit firms that had already left the audit market, conclusions have to be made with reservations.

The framework's second criterion refers to the question of whether financial markets recognise peer reviews and inspection reports as informative for decision-making. When the peer review system was voluntary, financial markets considered peer review reports to be informative signals of audit quality (compared to non-reviewed firms). However, when the system became mandatory the peer review system's signaling power decreased significantly: peer review reports had only a marginal effect on the financial judgments of financial experts and were not considered by audit committees in the selection process of audit firms. Peer reviews were not seen as transparent instruments to signal audit quality. The accounting profession shared this perception, as they did not believe that their clients would take review results into consideration. Thus, it can be concluded that while it was possible to differentiate between peer reviewed firms and non-reviewed firms, markets were not able to differentiate between different types of review results. Empirical findings concerning the market's awareness of PCAOB reports are less clear. Indeed, some authors do not identify an association between PCAOB outcomes and departing clients, whereas others point out that negative reports increase the likelihood of losing clients involuntarily and that the stock price movements of the clients of audit firms are sensitive to the issuance of inspection reports. Interestingly, not much work can be found on the perception of individual financial experts or of the accounting profession about the PCAOB inspections. Only one study found that PCAOB reports improved the credibility of future audit opinions.

Finally, the framework's third aspect focuses on the effect of peer reviews and PCAOB reports on audit quality. Empirical work on peer reviews has mostly used alternative assessments, such as outcomes of inspections conducted by state authorities, SEC enforcement actions, or compliance with GAAP, to reveal the effect of peer reviews on audit quality. The studies indicate that reviewed firms (compared to non-reviewed firms) conducted higher-quality governmental audits, were less likely to receive SEC sanctions, and showed fewer violations of GAAP reporting standards. Nevertheless, it is important to note that surveys indicate that financial practitioners were highly critical of the peer review program's ability to enhance audit quality; figures suggest that the majority did not believe in the system's effect on audit practices or its ability to detect material misrepresentation during a review process. Empirical work on the PCAOB has primarily used client-specific measures to assess the contribution of the inspection to overall audit quality. These results indicate that PCAOB opinions are able to distinguish earnings quality and that audit firms with detected deficiencies are more likely to issue going-concern opinions. Moreover, the rate of abnormal accruals of clients by audit firms declines subsequent to inspections. Another indicator of the PCAOB's contribution to overall audit quality is that studies show that PCAOB inspections incentivize low-quality audit firms to exit the audit market. Moreover, the analysis points out that triennially inspected firms tend to neglect the effect of PCAOB inspections on audit quality, while a more positive perception concerning the effect of the inspections on overall audit quality can be identified for larger audit firms.

Table 7 shows the synthesized result of the analysis.

7. Research gaps in audit regulation and future research potential

The analysis shows that the academic research on peer review and PCAOB inspection is extensive. At the same time, however, prior literature is still ambiguous and conflicting. In other words, mixed results (still) remain the rule rather than the exception. Contrasting the research of the two regulatory regimes does also highlight areas which remained neglected due to a dominance of quantitative research design and taken-for-granted assumptions. The following section therefore outlines some potential research endeavors.

7.1. Analyzing validity in full: the objectivity of reviewers and inspectors

Research has examined the validity of peer reviews in various ways. However, it is striking that, apart from direct surveys among the profession, studies on the expertise of peer review teams or analyses that take a closer and detailed look at the composition of review teams do not exist. The bulk of audit regulation appears to focus on matters of review independence instead of on the competence of reviewers. Insights are missing about the outcome and process effects of individual reviewer's competencies and of review team compositions. In particular, research has to address the possible effects of auditors for which peer reviews represent only an ancillary activity to their primary audit-related responsibilities (Carcello et al., 2011, p. 86). This is particularly important because, both in the U.S. and in other jurisdictions at the global level, the peer review system remains the dominant mode of external quality control for audit firms with non-listed companies as clients.

The literature analysis attests the same gap with respect to research about PCAOB inspections. The PCAOB is established as a formally independent authority; yet, the objectivity of inspectors should not be taken for granted a priori. This is because independence and objectivity, although having a substantial overlap, should not be used synonymously. Whereas "independence" is more an organizational attribute, "objectivity" relates to the unbiased mental attitude of reviewers and inspectors. Although anecdotal evidence indicates that PCAOB inspectors possess a high level of auditing experience (Glover et al., 2009; Lennox & Pittman, 2010), not much is really known about their background or their rationales for working for a governmental agency. The formal independence of the PCAOB regime might therefore not prevent the inspection process from being influenced by the individual characteristics, experience, and former affiliation of the particular inspector, and other possible process- and outcome-related factors. Disentangling independence from objectivity might therefore be a fruitful path for future research to analyze the extent and implications of regulatory capture of the PCAOB by the accounting profession.

7.2. Process rather than result orientation: the PCAOB inspection process

Both in peer reviews and PCAOB inspections, the risk of "creative-compliance" exists. This term refers to the practice of "complying with" rules by box-ticking, rather than taking substantive organizational steps (Baldwin, Cave, & Lodge, 2012). The inspection procedures under the PCAOB are not significantly different than the former review procedures, although Fogarty (1996, p. 253) has criticized that the "peer review process is predicated on the rather dubious presumption that the quality of the audit can be understood by an examination of the audit's working papers." They are based on an ex-post evaluation of the work conducted by the audit firm, and a disagreement with the audit firm's opinion about an audit engagement is interpreted as evidence of audit deficiency (Peecher, Solomon, & Trotman, 2013, p. 21). Thus, it could be the case, that the PCAOB's judgments are affected by the same factors as those found in studies on peer reviews (Emby et al., 2002; King et al., 1994; Peecher et al.,

2013), and that the efficacy of PCAOB inspections may be enhanced by focusing on process modifications. This is particularly important as the intensity of inspections (e.g. the amount of inspected audits) is not static: during an inspection, the inspection plan can be revised in order to target additional audits, which in most instances increases the number of deficiencies, and thereby worsens the formal assessment of audit quality (PCAOB member Goelzer, 2005). To date, this field has only been partially addressed by proposing evaluations of the inspection by the inspected firm (Daugherty & Tervo, 2010), or by arguing for a transition from outcome-oriented judgments to a more process-oriented approach (Peecher et al., 2013). Future research has therefore to move beyond the classical dichotomy of reviews versus inspections, to reveal the potentials of process modifications of external quality controls on audit quality.

7.3. Opening the black box through methodological pluralism

Regulatory failure needs to be separated from the organizational failures of regulated parties: “a late train [does] not necessarily indicate poor railway regulation” (Baldwin et al., 2012). In the end, it is the individual audit firm that determines audit quality. This is particularly crucial as a PCAOB inspection encompasses an entire organization: in addition to the inspection of specific audit engagements, the examination of the quality control system includes a detailed assessment of a firm’s general management and monitoring system in which formal and informal reporting structures, and the interactions of various committees and divisions within the firm, are assessed (Gradison & Boster, 2010). Therefore, it is important to assess the intra-organizational learning processes subsequent to an inspection. Insights are particularly evident in order to interpret the gradual “improvement” in review and inspection results over time; a trend that can be found for both the review and the inspection system.

The mean number of weaknesses in unmodified reports was 3.06 for the period between 1980 and 1986 (Wallace, 1991), decreased to 1.44 for the period between 1985 and 1999 (Casterella et al., 2009), and went further down to 1.04 in review reports from 1997 to 2003 (Hilary & Lennox, 2005). A similar trend can be identified for the PCAOB inspections as the number of identified deficiencies decreased for triennially (Anantharaman, 2012; Hermanson et al., 2007; Landis, Jerris, & Braswell, 2011; Ragothaman, 2012) and annually inspected firms (Church & Shefchik, 2012). In addition, the percentage of firms with quality control problems decreased (Hermanson & Houston, 2009), while the number of clean inspection reports increased (Gramling et al., 2011; Offermanns & Peek, 2011). Moreover, while the majority of firms had deficiencies in their first report, less than ten percent had deficiencies in their second report (Daugherty et al., 2011; Hermanson & Houston, 2009; Landis et al., 2011).

Yet, the interpretation of these “positive” trends is associated with methodological difficulties because different factors might have an effect on the results without enhancing the level of audit quality. Alternative explanations might be that the inspection philosophy shifted over time or that the audit firms have become better prepared for the inspections by providing special attention to issues that are likely targets for inspection (i.e., high-risk issues), or by “stylizing working papers to appease inspectors” (Church & Shefchik, 2012, p. 61).⁹ Thus, although literature suggests that the results for an audit firm improve with the number of review and inspections, the organizational learning process is unknown, and whether and how internal structures are adjusting due to identified deficiencies is still

⁹ In fact, the AICPA offered trial-run peer reviews to CPA firms without review experience to prepare them for the actual review process (Wallace, 1991).

unclear. In other words, what is really learned from the inspection process, and whether and how the findings change, shape, or shift the audit practices of organizations, remains unfathomable. An explanation for the lack of empirical findings about the processes of inspections and about the organizational learning of audit firms might be the general dominance of quantitative research designs, while other methods, such as field work in audit research, are hardly existent (Humphrey, 2008; Power, 2003). However, qualitative methods, such as participatory observations or qualitative interviews, could explore the interplay of inspectors and the audit firm during an inspection process and the subsequent diffusion of findings and improvements within the audit firms—and provide answers to what is really *learnt* from the external audit quality controls.

7.4. Focusing on the real causes for the regulatory shift: audit quality and the Big Four

Regulatory actions fail when the established regulatory regime does not produce the outcomes stipulated in its mandate (Baldwin et al., 2012). The accounting manipulations of Enron and other major companies were interpreted as evidence of serious shortcomings in the self-regulatory system of the auditing profession. Given the fact that the overall annual audit failure was close to zero (e.g. Francis, 2004; Palmrose, 1988), it was especially the roles of the Big Four that were in the focus of the public and political outcry. The large accounting firms exert significant influence on the U.S. economy: they audit more than 80 percent of all U.S. public companies, accounting for approximately 99 percent of US-based issuer market capitalization (Roybark, 2006, p. 145). Yet there is a paradoxical mismatch between the importance of this particular segment of the auditing profession and research's focus (see table 10).

While it is known that triennially inspected firms (firms with less than 100 clients) that have received deficiency reports have a higher ratio of clients to personnel and relatively small personal resources (Hermanson & Houston, 2008; Hermanson et al., 2007), less industry expertise (Gunny, Krishnan, & Zhang, 2007), and clients with low earnings quality (Gunny & Zhang, 2013), insights about annually inspected firms is limited. The fact that 95 percent of triennially inspected audit firms have fewer than ten clients (DeFond & Lennox, 2011, p. 25) makes the mismatch between relevance and research findings even more evident.

To date, only the studies by Carcello et al. (2011), Church and Shefchik (2012), Gunny and Zhang (2013) and Houston and Stefaniak (2013) allow conclusions regarding the effect and perception of PCAOB inspection on large accounting audit firms. But while Carcello et al. demonstrate that PCAOB inspections distinguish audit quality, Gunny and Zhang do not find supporting evidence. Methodological problems are the lack of variation of PCAOB reports for Big Four firms and the fact that, although quality control deficiencies have been found in every Big Four inspection, they remain mostly beyond the scope of academia because they are addressed in a timely manner, remaining undisclosed (Church & Shefchik, 2012). While scientific evidence exists concerning the interrelations of the Big Four within the international regulatory arena (Gillis, Petty, & Suddaby, 2014; Humphrey, Moizer, & Turley, 2006; Suddaby, Cooper, & Greenwood, 2007), it seems that research has partially overlooked the roots and causes of the shift from self-regulation to government regulation. As a result, to date, it has only scratched the surface of whether government regulation really decreased the risk of large accounting scandals.

8. Conclusion

For more than one decade, the U.S. audit profession has now been monitored by PCAOB inspections under government oversight. This paper reviews research on the former peer review system and the current PCAOB system. Prior literature is analyzed and synthesized along three research axes: the validity of reviews and inspections, the recognition of reviews and PCAOB inspections for decision-making, and the effect of reviews and inspections on audit quality.

Research on the former peer review system is consistent with regard to several findings. First, the results indicate that the initial introduction of external quality controls through peer reviews enhanced the quality of services provided by audit firms. When reviewed firms were compared with non-reviewed firms, the reviewed firms were found to have conducted higher quality governmental audits, were less likely to have received SEC sanctions, and showed fewer violations of GAAP reporting standards. When peer review became mandatory for AICPA member firms, the analysis suggests that users began to ignore review reports. This can be explained by the inability of financial actors to differentiate the audit quality among peer reviewed firms and/or by the awareness of the system's main shortcoming: multiple studies provide evidence for the lack of objectivity to which the system was exposed.

When analyzing research on the PCAOB regime, results indicate a positive effect of PCAOB inspections on audit quality. At the same time, however, audit firms themselves are rather skeptical concerning the effect of PCAOB inspection on audit quality. This mismatch has to be addressed by future research, in particular through research designs that focus on the intra-organizational learning processes of audit firms subsequent to PCAOB inspections. In addition, further research is necessary to elaborate whether financial markets really trust the credibility of public authorities. While one study demonstrated that market share of audit firms is insensitive to the content of PCAOB reports, other studies reveal the opposite. The absence of an overall quality rating, the fact that quality-control findings are kept confidential, and the three-year inspection cycle for triennially inspected firms might explain the market's hesitation to take into account PCAOB inspections for decision-making purposes. These obstacles have also to be considered by other audit regulators around the globe, which aim at reforming their oversight structures to maintain or gain legitimacy in the public and the financial spheres.

This study cannot eliminate the potential confusions that are associated with history, which is the main limitation of this study. For instance, confounding SOX provisions hamper research on the PCAOB inspections. Provisions, as management certifications change with regard to audit subcommittee independence (SOX, Sec. 301), or bans on the delivery of certain non-audit services (Sec 201), might simultaneously affect audit quality and other aspects under consideration. For this reason it is all the more important to shed light on the identified areas which have not been addressed yet, but are far from insignificant in importance. It remains therefore to be shown by future research whether direct government regulation has decreased the risk of large accounting scandals, political tsunamis, and further rounds of regulatory reforms.

Acknowledgments

The author is grateful to Stephen Asare and Bill Messier for their valuable comments and feedback. Previous versions of this manuscript have benefited from the suggestions and comments received from Brian Shapiro, Robert J. Kirsch, Anke Müßig, James R. Dalkin, Christopher Humphrey, Christian Pietsch, Andrea Mennicken, and participants at the 2013 European Auditing Research Network Symposium (Trier, Germany), the 2014 Meeting of the AAA Public Interest Section (San Diego, US), and the 2014 Annual Conference of the British Accounting and Finance Association (BAFA) (London, UK).

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Table 1: A summary of literature concerning the validity of peer reviews.

Authors & date	Method	Research design	Sample	Key findings
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Wallace (1991)	A	Statistical analysis of the relationship of the type of peer reviewer (AICPA-appointed review team, CPA firm, state-sponsored team), and total findings in review reports.	352 public peer reviews of the SECPS files from 1980 through 1986.	As the type of reviewer did not affect the number of review findings, the study concluded that the peer review process was reliable.
Wallace & Cravens (1994)	CA	Descriptive analysis of peer reviewee response letters to the AICPA.	AICPA cover letters accompanying review files from 1980 through 1986.	The majority of the reviewed firms accepted the proposed suggestions from the review team.
King et al. (1994)	E	Experiment on the effect of a reviewer's knowledge of a proceeding against the audit firm.	49 experienced auditors reviewed an attestation engagement performed by auditors from small accounting firms.	Peer reviewer's knowledge of a negative allegation negatively influenced a peer reviewer's evaluation.
Ehlen & Welker (1996)	S	Survey among CPA firms about the AICPA peer review system.	294 firms that had a peer review under the Division for CPA Firms and 292 firms that had a review under the QRP.	The majority of reviewed firms (85% in the Division and 76% in the QRP) perceived their reviewers seen as fair in the review process.
Emby et al. (2002)	E	Examination of the influence of prior outcome knowledge on peer evaluation judgments of audit partners.	122 audit partners from Canada and the United States.	Auditors who received outcome information tended to rate outcome-consistent items of evidence as more important.
Hilary & Lennox (2005)	A	Statistical analysis of the relationship between peer reviewer characteristics and review findings.	Sample of 1,001 SECPS reviews issued in the years 1997 to 2003. 14 reviews were performed by AICPA teams, 73 reviews by CPA associations, and 914 were firm-on-firm reviews.	Reviewing firms were less likely to disclose problems if they did not compete against reviewed firms.
Lennox & Pittman (2010)	A	Statistical analysis of the association between review outcome and the change of an audit firm's reviewer.	545 PCAOB inspection reports in 2007; 1,001 peer review reports between 1997 and 2003.	The study validates criticism that the peer review lacked objectivity as audit firms chose their reviewers strategically: a reviewer was more likely to be changed (retained) if it previously issued an unfavorable (favorable) opinion.
Anantharaman (2012)	A	Comparison of peer review reports and PCAOB inspection reports.	407 firms' last peer review and first PCAOB inspection report.	The type of reviewer affected the review result: audit firms that chose their own reviewers tended to receive more favorable peer review reports than their subsequent PCAOB reports.

A = archival, E = experimental, S = survey, CA = content analysis

Table 2: A summary of literature concerning the recognition of peer reviews in decision-making.

Authors & date	Method	Research design	Sample	Key findings
Francis et al. (1990)	A	Audit fees as proxy for audit quality, to see whether reviewed firms are perceived as quality-differentiated auditors.	208 audit observations from 1984/1985, audited from non-Big Eight auditors.	The voluntary membership in the peer review programme did not affect the audit fees of audit firms: No systematic audit fee difference between member and non-member CPA firms was observed.
File et al. (1992)	S	Perception of bankers and auditors about peer reviews.	Questionnaires sent to 100 bankers and 100 randomly selected auditors.	Peer review reports, compared to firm size and industrial expertise, had only marginal effect on financial judgments of financial experts.
Elsa & Stewart (1995)	S	Perception of CPA firms about the peer reviews system.	437 questionnaires from reviewed Colorado CPA firms.	Majority of audit firms did not believe that their clients were interested in their peer review results.
Giroux et al. (1995)	A	Audit fees as proxy for audit quality, to see whether reviewed firms are perceived as quality-differentiated auditors.	232 quality review control audits conducted by the Texas Education Agency for its fiscal years 1985 to 1988.	Peer reviewed firms provided higher audit quality with audit price premium (compared with non-reviewed firms) related to more extensive audit procedures.
Ehlen & Welker (1996)	S	Perception of CPA firms about peer review.	294 firms that had a peer review under the Division for CPA Firms and 292 firms that had a review under the QRP.	Majority of audit firms believed that their clients would not show interest in peer review results.
Alam et al. (2000)	S	Perception of financial analysts, banks, and audit clients of peer review.	233 usable responses: 42% from CPA firms, 42% from banks, and 18% from financial analysts.	Participants did not believe that audit firms' clients and investors understood the procedures and mechanisms of a peer review.
Schneider & Ramsay (2000)	S	Perception of bank lending officers about peer reviews.	Survey of 193 bank lending-officers.	Peer reviews did not directly affect the financial judgment of bankers, unless the results of peer reviews were specifically provided to them.
Woodlock & Claypool (2001)	S	Perception of peer reviews by audit committees.	Checklist survey of 68 audit committees serving large publicly traded corporations.	Audit committees selected an audit firm without considering peer review reports.
Payne (2003)	E	Experiment designed to investigate audit quality and pricing under settings that manipulate the timing of the peer review process.	Eight multi-period laboratory markets contracting via a computerized sealed-offer auction. Each market has four buyers (clients) and four sellers (auditors).	The three-year review cycle impeded the market's reaction towards peer review.
Hilary & Lennox (2005)	A	Association between peer review reports and changes in number of clients.	1,001 reviews issued in the years 1997–2003.	Peer reviews provided information to clients about audit firm quality: in the analysis, peer reviewed firms gained (lost) clients after they received clean (modified/adverse) opinions.

A = archival, E = experimental, E = experimental, S = survey

Table 3: A summary of literature concerning the effect of peer reviews on audit quality.

Authors & date	Method	Research design	Sample	Key findings
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Bremser & Gramling (1988)	A	Number of comments as proxy for educational contribution to audit quality.	66 CPA member firms of the Division's SECPS, which had been peer reviewed at least twice.	The participation in a peer review decreased the number of comments in review reports.
Deis & Giroux (1992)	A	Relationship between peer review membership and governmental control findings, which served as proxy for audit quality.	308 quality control reviews, conducted by the Audit Division of the Texas Education Agency from 1984 to 1989.	Audit firms that voluntarily participated in the peer review programme conducted higher-quality audits.
Felix & Prawitt (1993)	S	Perception of CPA firms about the peer review system.	115 questionnaires filled by SECPS audit firms.	30% of CPA members reported positive changes in their audit practices as a result of peer reviews.
McCabe et al. (1993)	S	Perception of CPA partners about the peer review system.	195 firms from the Division for CPA Firms, from PCPS and SECPS.	The majority of firms doubted that peer review increased a firm's ability to detect material misrepresentation.
O'Keefe et al. (1994)	A	For a sample of school district audits regulated by the California State Controller's Office, an index was obtained of the number and importance of violations of GAAS reporting standards by each school district's audit firm.	935 school district audits from 1986.	Participation in peer review (through the firms' membership in the AICPA's Division of Firms) was not related to violations of reporting standards.
Giroux et al. (1995)	A	Time of audit engagement as a surrogate for audit quality.	232 quality review control audits conducted by the Texas Education Agency between 1985 and 1988.	Reviewed firms spent more time on audit engagements, which was interpreted as higher-quality audits.
Grant et al. (1996)	E	Experimental design, auditing modeled as a multi-personal social dilemma.	A series of laboratory experiments using 142 upper level undergraduate accounting majors and first-year MBA students as subjects.	In the experiment the level of audit quality increased in a self-regulatory regime.
Rollins & Bremser (1997)	A	Analysis of the relationship between an audit firm's characteristics or type of financial reporting violations and enforcement actions against the auditor.	91 enforcement cases, in which the SEC issued Accounting and Auditing Enforcement Releases (AAERs).	The participation in peer reviews decreased the likelihood of receiving SEC sanctions.
Colbert & Murray (1998)	A	Statistical relationship between reviewee characteristics and peer reviewer's review findings.	422 small CPA firms selected from the ACIPA's Private Companies Practice Section.	The study identified that audit firms improved their peer review ratings over time: firms with a larger number of previous reviews received more favorable ratings.
Shafer et al. (1999)	E	Experiment about the effect of formal sanction threats on auditors' behavior.	Research instruments were mailed to a random sample of AICPA members.	Peer review did not provide adequate incentives for audit firms to reduce the incidence of financial statement misstatements.

Krishnan & Schauer (2000)	A	Relationship between peer review and compliance with GAAP.	35 clients of Big Six firms, 129 clients of non-Big Six firms.	In the study, the participation in a peer review increased the compliance with GAAP.
Alam et al. (2000)	S	Survey on the effectiveness of peer review in improving audit quality among key constituents.	233 usable responses from CPA firms, audit clients, bankers, and financial analysts.	The constituents did not agree on the importance of peer in helping audit firms better detect fraud in financial statements. When compared to the other groups, accounting firms viewed peer review as being least important for “improving fraud detection”.
Casterella et al. (2009)	A	Relationship between files of insurance company specializing in professional liability and peer review reports.	158 files of an insurance company that specialized in professional liability coverage for local and regional accounting firms.	Peer review was identified as an effective mechanism for differentiating quality among audit firms: The study demonstrated a link between the number of weaknesses in a peer review report and the likelihood of that firm having a malpractice claim filed against it, and various firm-specific indicators for risk/quality.

A = archival, E = experimental, S = survey

Table 4: A summary of literature concerning the validity of the PCAOB inspections.

Authors & date	Method	Research design	Sample	Key findings
Glover et al. (2009)	C	Evaluation of the PCAOB inspection process.	Anecdotal evidence.	Anecdotal evidence indicated that inspectors did not possess appropriate knowledge to assess audit engagements.
Daugherty & Tervo (2010)	S	Perception of triennially inspected audit firms of PCAOB inspections.	146 accountants of small registered public accounting firms.	The performance of the PCAOB inspection team was seen as appropriate.
Newman & Oliverio (2010)	S	A survey which focused on the PCAOB inspection process of no-deficiency firms.	From a list of 251 firms, a random sample of 115 firms was selected with no attention to whether they had received one or two no-deficiency inspections.	The majority of firms viewed the inspectors as knowledgeable, competent, and fair.
Blankley et al. (2012)	CA	Analysis of the response letters to the PCAOB from triennially inspected audit firms.	1,081 response letters.	Firms with engagement deficiencies were more likely to disagree with the PCAOB’s assessment.
Church & Shefchik (2012)	R	Analysis of the inspection reports of large accounting firms.	All 2004–2009 inspection reports from large accounting firms.	Big Four firms disagreed more frequently with findings than second-tier firms.
Ragothaman (2012)	A	Comparison of quality control deficiencies in PCAOB reports and peer review reports.	106 PCAOB reports for triennially inspected firms; and 2,355 AICPA peer review reports for firms with less than 100 SEC audit clients.	PCAOB inspectors were identified as tougher than peer reviewers as PCAOB quality control reports contained a significantly higher number of deficiencies than peer review reports.

Houston & Stefaniak (2013)	S	Questionnaire with three sets of questions related to PCAOB inspections and Internal Quality Reviews (IQR).	107 U.S. multiple partners from international, national, and regional public accounting firms.	A majority of partners perceived that, relative to IQR reviewers, PCAOB inspectors had a worse understanding of firms' audit methodologies and examined less audit areas.
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A = archival, C = commentary, R = review, S = survey, CA = content analysis

Table 5: A summary of literature concerning the recognition of PCAOB inspections in decision-making.

Authors & date	Method	Research design	Sample	Key findings
Lennox & Pittman (2010)	A	Association between the number of inspection findings and the change in the number of clients of small and large audit firms.	545 PCAOB inspection reports through 2007, 1,001 peer review reports between 1997 and 2003.	No association was found between PCAOB inspection outcome and client losses.
Robertson & Houston (2010)	E	Association between the type of deficiencies and the anticipation of future audit opinions.	142 MBA students as a proxy for non-professional investors.	PCAOB reports served as a useful tool to improve the credibility of audit opinions. The degree to which the perception increased was determined by (1) firms' responses to reports with concessions, (2) reports with high (low) deficiencies, (3) for small (large) firms.
Offermanns & Peek (2011)	A	Variance in stock return of auditors' clients as an indication for market reaction to PCAOB inspection reports.	224 first-round and 134 second-round inspection reports from 2005 to 2010.	PCAOB inspection reports affected the value of an audit firm's client through their effect on information quality.
Wainberg et al. (2011)	A	Association between PCAOB reports and perceived and actual audit quality.	1,129 PCAOB reports for small audit firms for the years 2004 to 2010.	PCAOB reports were identified as ineffective instruments for signaling audit quality.
Daugherty et al. (2011)	A	Association between deficiency reports and the client loss of triennially inspected firms.	748 inspections performed on triennially inspected firms for the years 2005 to 2008.	Negative PCAOB reports increased the likelihood of losing clients involuntarily, while deficiencies related to the quality control system had no effect.
Robertson et al. (2014)	E	Association between PCAOB reports and perceived audit quality.	90 responses from independent mailings to U.S. public company financial executives.	PCAOB inspection reports decreased perceived audit quality.
Houston & Stefaniak (2013)	S	Questionnaire with three sets of questions related to PCAOB inspections and Internal Quality Reviews (IQR).	107 U.S. multiple partners from international, national, and regional public accounting firms.	Participants believed that PCAOB inspectors were more focused on finding deficiencies than were IQR reviewers, and that the IQR feedback was more helpful for improving audit quality.
Abbott et al. (2013)	A	Relation between the PCAOB inspection reports with GAAP deficiencies and the audit firms' clients.	521 triennially inspected accounting firms, PCAOB inspection reports filed from 2005 to 2007.	PCAOB inspections served as signal of audit quality for smaller firms: Clients of GAAP-deficient audit firms were more likely to dismiss their auditors in favor of audit firms without GAAP-deficiencies.

A = archival, C = commentary, E = experimental, S = survey

Table 6: A summary of literature concerning the effect of PCAOB inspections on audit quality.

Authors & date	Method	Research design	Sample	Key findings
Read et al. (2004)	I	Interviews with audit firms on the reasons for ceasing SEC audits.	155, 144, 206, and 270 audit resignations in 2000, 2001, 2002, and 2003, respectively.	Small audit firms that ceased performing SEC audits explained their deregistering due to the perceived stringent PCAOB oversight.
Hermanson & Houston (2008)	A	Analysis of the characteristics of firms whose quality control defects were disclosed on the PCAOB website.	Defects for 20 smaller registered audit firms from 2005 to 2006.	PCAOB inspections identified understaffed audit firms which provide low-quality services.
Hermanson & Houston (2009)	A	Comparison of the results of first-round and second-round inspections.	116 PCAOB inspection reports of smaller firms' second inspections.	PCAOB inspections improved the audit firms' auditing services.
Daugherty & Tervo (2010)	S	Survey of triennially inspected audit firms focusing on the PCAOB's effect on audit quality.	146 leaders of public accounting firms, which are triennially inspected.	Larger firms in the sample believed that PCAOB inspections improved audit quality, while small firms did not believe in an improvement.
Newman & Oliverio (2010)	S	Survey of firms that had received a no-deficiency report.	From a list of 251 firms, a random sample of 115 firms was selected with no attention to whether they had received one or two no-deficiency inspections.	The majority of survey firms believed that PCAOB inspections would be necessary and agreed that PCAOB inspections are effective.
Daugherty et al. (2011)	A	Analysis of the effect of negative PCAOB inspections on triennially inspected audit firms.	748 inspections performed on triennially inspected auditors for reports released from 2005 to 2008.	Deficiency reports were associated with audit firms voluntarily resigning from the audit market.
Carcello et al. (2011)	A	Effect of PCAOB inspections on earnings management of audit firm clients.	Changes in abnormal accruals between 2004 and 2006 for 4,719 Big Four clients.	PCAOB inspections improved audit quality, measured by a reduction in the auditees earnings management in the first and second year following a PCAOB inspection.
Gramling et al. (2011)	A	Association between PCAOB outcomes and client firms' characteristics.	407 triennially inspected firms (11,879 client-year observations) from 2004 to 2006.	Audit firms with PCAOB-identified deficiencies were more likely to issue a GC opinion for financially distressed clients subsequent to their PCAOB inspection than prior to their inspection.
DeFond & Lennox (2011)	A	Characteristics of small audit firms exiting the audit market.	All small audit firms exiting audit market from 2001 to 2008.	PCAOB inspections incentivized lower quality audit firms to exit the market.
Blankley et al. (2012)	CA	Analysis of the response letters of triennially inspected audit firms to the PCAOB.	1,081 response letters.	50% of responding firms expressed support for the PCAOB and suggested that inspections would lead to improvements in audit quality.
Gunny & Zhang (2013)	A	Association between PCAOB outcomes and client firms' characteristics.	527 triennially and annually inspected firm inspection reports from 2005 to 2009.	Deficiency audit firms were associated with low audit quality indicators (abnormal accruals and propensity to restate) when PCAOB reports were seriously deficient.

A = archival, E = experimental, S = survey, I = interview, CA = content analysis

Table 7: Synthesized result

Dimension	Peer reviews	PCAOB inspections
Validity	Expertise: high Independence: impaired	Expertise: mixed findings Independence: no studies exist
Recognition in decision-making	Voluntary system: yes Mandatory system: mixed findings	mixed findings
Effect on audit quality	Voluntary system: yes Mandatory system: mixed findings	yes

Table 8: Analyzed data of studies on PCAOB inspections

Studies using data of triennially inspected audit firms	Studies using data of annually inspected audit firms
<ul style="list-style-type: none"> • Hermanson et al. (2007) • Hermanson & Houston (2009) • Daugherty & Tervo (2010) • Daugherty et al. (2011) • Gramling et al. (2011) • Landis et al. (2011) • Ragothaman (2012) • Blankley et al. (2012) • Abbott et al. (2013) 	<ul style="list-style-type: none"> • Carcello et al. (2011) • Church & Shefchik (2012) • Gunny & Zhang (2013) (data both from triennially and annually inspected firms) • Houston & Stefaniak (2013)