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The credibility of self-regulation: Evidence from the accounting profession's peer review program ☆

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Abstract

Following the Sarbanes–Oxley Act, self-regulated peer reviews at accounting firms were replaced by independent inspections conducted by the Public Company Accounting and Oversight Board. Critics of self-regulation had argued that the peer review program lacked credibility. This paper tests whether the opinions issued by the peer reviewers provided credible information to clients about audit firm quality. We find audit firms gained clients after receiving clean opinions from their reviewers and lost clients after receiving modified or adverse opinions. This suggests peer review opinions provided credible information about quality differences between audit firms.

JEL classification: G18; L51; M42

Keywords: Self-regulation; Sarbanes–Oxley act

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1. Introduction

The Sarbanes–Oxley Act (2002) created the Public Company Accounting and Oversight Board (PCAOB) because of concerns that self-regulation of the accounting profession had failed to protect investors from poor quality audits. One of the PCAOB's responsibilities is to conduct independent inspections of public company audit firms. Prior to 2004, these inspections were undertaken as part of a self-regulated peer review program, administered by the American Institute of Certified Public Accountants (AICPA).

The move away from self-regulation was supported by critics who claimed peer reviews lacked credibility for two reasons. First, it was argued that reviewers were unlikely to detect important deficiencies at reviewed firms (e.g., Fogarty, 1996). Reviewers did not directly test the validity or appropriateness of the work performed by reviewed firms. Rather, they gathered information on firms' quality control procedures by interviewing staff and inspecting documentation (typically working papers). As a result, reviewed firms may have been able to hide deficiencies by preparing better documentation and by training their staff in how to respond to reviewers' questions.[1] Second, it was claimed that reviewers lacked incentives to perform independent reviews. For example, the Public Oversight Board (POB) stated in 2002, "peer review has come under considerable criticism from members of Congress, the media and others. 'You scratch my back, I'll scratch yours' is the prevailing cynical view of peer review raised by many". Along a similar vein, former Chair Williams of the Securities and Exchange Commission (SEC) testified before the Senate Banking Committee (on February 12, 2002) that the peer review process is "too incestuous. A system needs to be established which is independent of the accounting profession." In spite of these criticisms, anecdotal evidence suggests that peer reviews may have provided useful information about audit quality. In a survey study, Woodlock and Claypool (2001) find 28% of audit committees examined the peer review opinions prior to choosing their audit firms. In addition, Frauenthal (1991) suggests that small audit firms were able to use clean opinions as a marketing tool to win new clients from large audit firms. However, it is not known if these anecdotes were isolated cases or if peer reviews provided credible information about the quality of audit firms. We investigate this issue by examining clients' hiring and firing of audit firms in the 12-month period following issuance of peer review opinions.

Reviewers documented their findings in peer review opinions that were made publicly available by the AICPA. Reviewers issued 'clean' opinions if they found no 'significant' weaknesses at the audit firms.[2] If weaknesses were significant but not 'serious', reviewers reported the weaknesses in 'unmodified' opinions. If weaknesses were either serious or very serious, reviewers issued 'modified' or 'adverse' opinions.[3] If these opinions were credible

[1]Like peer review, PCAOB inspectors interview staff and inspect documentation. Firms have advance notice of PCAOB inspections. As a result, reviewed firms may still be able to hide deficiencies from PCAOB inspectors.

[2]A weakness was 'significant' if, in the reviewer's judgment, there was more than a remote possibility that the reviewed firm did not comply with professional auditing standards. For example, one of the unmodified opinions in our sample contains the following statement, "several financial statements did not include all the disclosures required by generally accepted accounting principles in such areas as concentrations of credit risk and 5-year maturities of long-term debt."

[3]For example, one of the adverse opinions in our sample contains the following comment, "On the audit engagements, we noted auditing standards generally accepted in the USA were not followed in the area of planning, risk assessment, internal controls, management representation letters, attorney representation letters

indicators of audit quality, we expect clients would have dismissed audit firms that received modified or adverse opinions and appointed firms that received clean opinions. Consistent with our expectation, we find reviewed firms gained clients after receiving clean opinions and lost clients after receiving modified or adverse opinions. The net change in the number of clients is +3.5% for firms that received clean opinions, −0.3% for unmodified opinions with significant weaknesses, and −6.8% for modified/adverse opinions. Our results are robust to different model specifications and alternative measures of client gains and losses.

There are two possible interpretations of these findings. First, clients may have used opinions when deciding which firms to appoint. Indeed, the AICPA made opinions publicly available in order to increase public information about the quality of audit firms. In addition, the AICPA promoted public awareness of peer reviews by placing advertisements in publications such as the ABA Banking Journal and the Community Banking Quarterly.[4] Second, opinions could have flagged firms that were already known to be performing poorly. Clients may have left these firms because of their pre-existing reputations rather than because of the unfavorable peer review opinions. Two further results support the first interpretation rather than the second. First, we find no significant association between opinions and client changes in the 12 months prior to the opinion issuance. Therefore, clients responded only after opinions were issued, not during the review period. Second, we sort the weaknesses disclosed in opinions according to whether they would have been 'observable' or 'unobservable' to clients prior to opinion issuance. Consistent with opinions being informative, we find audit firm changes made by clients are associated with unobservable weaknesses but not with observable weaknesses. We conclude that opinions provided credible information that was not available prior to their issuance.

This paper's main contribution is to the literature on self-regulation. It has been argued, at least since Stigler (1971), that external regulators may be ineffective if they are "captured" by the constituents being regulated. Self-regulation may also be ineffective if self-regulators act in the best interests of their constituents rather than in the best interests of the public. Self-regulation is not unique to the accounting profession, for example the medical, legal, and education professions are largely self-regulated and have various forms of peer review. Although audit firms with SEC clients are now regulated by the PCAOB, audit firms with only private clients continue to be self-regulated by the AICPA and are subject to peer review. Moreover, accounting professions in many countries (e.g., the UK, Australia) remain self-regulated. Despite the ubiquity of self-regulation and peer reviews, there is surprisingly little empirical evidence on their credibility. Although we conclude that self-regulated peer reviews were credible, we do not conclude the system was flawless. In particular, some audit firms may have had serious weaknesses that were not detected by reviewers. Since reviewers tested audit quality on a sample basis, some reviewers may have failed to detect existing problems. It remains an open question whether or not PCAOB inspectors will perform more thorough inspections than the peer reviewers did and therefore will detect more weaknesses at audit firms.

(*footnote continued*)
and reporting. In addition, required communication deficiencies, disclosure deficiencies, and documentation of procedures performed were noted. Five of six audits reviewed were substandard due to the aforementioned issues and the firm is taking action to perform the audit procedures that were omitted."

[4]According to its web site, the AICPA received more than 600 phone calls in the fourth quarter of 1999 about the peer review program, or about one call for every business hour.

The rest of this paper is organized as follows. Section 2 describes self-regulation in the accounting profession and the peer review program Section 3 provides descriptive statistics. Section 4 examines reviewed firms' gains and losses of clients following issuance of opinions. Section 5 concludes with a discussion of the main findings.

2. Regulation of the accounting profession

2.1. The peer review program

Following a series of accounting scandals in the 1970s, the U.S. accounting profession became self-regulated by the AICPA. Audit firms with SEC clients were required to belong to the SEC Practice Section (SECPS) and were monitored through mandatory reviews that were undertaken once every three years.[5] In addition, audit firms with only private clients had the option to join the SECPS voluntarily and these firms were also subject to peer review. Following the Enron and WorldCom scandals, the Sarbanes–Oxley Act (2002) signaled the end of self-regulation for the audit firm members of the SECPS. The PCAOB was established, replacing the POB which had previously been responsible for monitoring the efficacy of self-regulation under the AICPA.[6]

Under the self-regulated peer review program, auditors were 'audited' (i.e., peer-reviewed) by other auditors. A firm could opt to be reviewed by either: (1) an AICPA-appointed review team; (2) a private CPA association; or (3) an individual audit firm. For the first type of review, the AICPA selected reviewers by matching the specialties of the reviewed firms and the reviewers. In the second case, the firm was reviewed by a private association of CPA firms.[7] In AICPA and association reviews, review team members were drawn from different firms. For the third type of review, all members of the review team came from the same firm and these were known as 'firm-on-firm' reviews. The reviewed firm could choose which firm would perform the review but the AICPA prohibited reciprocal reviews because of concerns about collusion between reviewing and reviewed firms.[8] We find no cases of reciprocal reviews in our sample, which suggests the AICPA's prohibition was adequately enforced.

In each type of review, the focus was on the reviewed firm's quality control system. The review team was required to evaluate whether: (1) the firm's system of quality control was adequately designed; (2) the firm complied with its quality control system; and (3) the firm complied with the membership requirements of the SECPS. Reviewers were required to

[5]Following the introduction of mandatory reviews in 1988, Charles Kaiser (former chair of the AICPA) stated "self-regulation provides credibility, generates public trust and reduces unnecessary, costly governmental intervention" (Kaiser, 1989).

[6]Shortly prior to its dissolution the POB stated "in recent years, regulatory oversight and attempts at further reforms have been met with resistance or outright rejection by the profession […] The AICPA and several of the Big Five firms, in the view of some, saw the POB's role as one of a "shield" for the profession rather than as an independent overseer […] The peer review process has come to be viewed as ineffective, either as a diagnostic or remedial tool. More importantly the process has lost credibility because it is perceived as being "clubby" and not sufficiently rigorous" (Pubic Oversight Board, 2002).

[7]Six associations performed peer reviews on their member firms: (1) DFK International, (2) Accountants Global Network, (3) CPAmerica, (4) National Associated CPA firms, (5) International Group of Accounting Firms, and (6) CPA Associates International.

[8]For example, if firm A reviewed firm B, firm B could not review firm A.

evaluate the following five elements of the quality control system (AICPA, 1996): (1) Independence, (2) Personnel management, (3) Client acceptance and continuation, (4) Engagement performance, and (5) Monitoring. Table 1 describes these five elements in more detail. Reviews were conducted at the firm level rather than at the office level. Therefore, one opinion was issued for the entire firm, irrespective of the number of engagements performed by the firm.

Reviewers collected evidence on quality control systems by interviewing staff and checking a sample of working papers. Since testing was done on a sample basis, reviewers were not expected to identify all significant weaknesses. After collecting evidence, the review team issued an opinion, which was made publicly available by the AICPA. There were four types of opinion: (1) clean, (2) unmodified with weaknesses, (3) modified, or (4) adverse. Clean opinions were issued if reviewers found no significant weaknesses. Weaknesses were disclosed in unmodified opinions if they were significant but not serious.Opinions were modified if weaknesses were serious or, in very serious cases, opinions were adverse.

2.2. Hypothesis

Opponents of self-regulation claimed that peer reviews lacked credibility. If this were the case, we would expect that peer review opinions would not affect clients' dismissals and appointments of audit firms. On the other hand, there is anecdotal evidence that some audit committees inspected the peer review opinions before selecting audit firms (Woodlock and Claypool, 2001). It is therefore an open question whether the peer review opinions affected dismissals and appointments of audit firms. If opinions were informative

Table 1
Six factors considered by peer reviewers

Factor	Description
1. Independence, integrity and objectivity	Personnel should maintain independence in fact and in appearance, perform all professional responsibilities with integrity, and maintain objectivity in performing their professional responsibilities.
2. Personnel management	New personnel are qualified to perform their work competently, work is assigned to personnel who have adequate technical training and proficiency, personnel participate in continuing professional education and professional development activities, personnel selected for advancement have the qualifications necessary for the fulfillment of their responsibilities.
3. Client acceptance and continuation	Policies and procedures should be established for deciding whether to accept or continue a client relationship. The firm should only undertake engagements that can be completed with professional competence.
4. Engagement performance	Policies and procedures should exist to ensure the work performed meets professional standards, regulatory requirements, and the firm's internal quality standards.
5. Monitoring	Policies and procedures should exist to ensure that the above four quality control elements are being applied effectively.
6. Compliance with membership requirements of the SECPS	The firm should comply with the membership requirements of the SECPS (e.g., maintain a list of restricted entities, concurring partner review, continuing professional education, independence training).

about audit quality, we expect that clients dismissed (appointed) firms that received unfavorable (favorable) opinions. We therefore test the following hypothesis:

H1. Reviewed firms gained clients after receiving clean peer review opinions and lost clients after receiving modified or adverse opinions.

To test H1, we count the number of clients gained and lost by reviewed firms during a 12-month window following the issuance of opinions. We choose a 12-month window because auditor appointment decisions are typically made on an annual basis. In a multivariate model that controls for the reviewed firm's characteristics, we regress the number of clients gained and lost against the opinions. If the opinions were informative about audit quality, we expect that the opinions predict subsequent client gains and losses. Our maintained assumption in this test is that the average client prefers a high-quality firm since high-quality auditing helps to reduce information risk and the cost of capital.[9] This assumption is consistent with evidence that clients increase the credibility of their financial statements by appointing high-quality auditors (Teoh and Wong, 1993).

3. The sample and descriptive evidence

3.1. The sample and data sources

We collect data on SECPS firms from the AICPA's Public File.[10] The File contains each firm's annual report submitted to the AICPA. We use the annual report closest to the opinion date to obtain information about each reviewed firm's characteristics (e.g., size, pending litigation). The File also contains each firm's most recent peer review opinion. The File does not include prior opinions, so we have one observation for each reviewed firm. The AICPA informs us it does not retain copies of prior peer reviews, so we are unable to gather time series data. To be in our sample, we require that each firm has a peer review and an annual report in the Public File. We exclude Arthur Andersen because its peer review was completed as the Enron scandal began to unfold. Our resulting sample consists of 1001 reviews issued in the years 1997–2003. We find 14 reviews were performed by AICPA teams, 73 reviews were conducted by CPA associations, and 914 were firm-on-firm reviews ($1001 = 14 + 73 + 914$).

We obtain information on gains and losses of SEC clients using the Auditor-Trak database. We count gains and losses that result from audit firms' dismissals (and subsequent appointments). We exclude gains and losses that result from new listings, going private, and audit firm resignations. Extant research indicates audit firms are more likely to resign when clients have high risk (e.g., DeFond et al., 1997). High-quality audit firms have stronger incentives to resign (i.e., lose clients) when clients are more risky. Moreover, low-quality firms could gain clients if they accept high-risk clients following auditor resignations. We avoid this confounding effect by excluding gains and losses that result from resignations. We also exclude any client gains when Arthur Andersen was the outgoing audit firm after November 1, 2001 because these gains were likely triggered by the

[9]Low quality does not necessarily imply that the auditor is more lenient. For example, a low-quality auditor may fail to fully understand a complex but properly reported transaction.

[10]The File is accessible at www.aicpa.org/members/div/secps/publicfile01.htm. Our data can also be downloaded from www.ihome.ust.hk/~accl/ or from http://www.bm.ust.hk/~acct/staff/acgh.html.

Table 2
Descriptive statistics for the sample

Variable	Mean	Median	Std. dev.	Minimum	Maximum
$\#CLIENTS_i$	12.75	1.00	139.73	0.00	2975.00
$ZERO\_CLIENTS_i$	0.32	0.00	0.47	0.00	1.00
$REVIEWER_i$	0.21	0.00	0.40	0.00	1.00
$SIZE_i$	171.00	25.00	1903.51	1.00	46925.00
$\ln(SIZE_i)$	3.18	3.22	1.38	0.00	10.76
$LITIG_i$	0.06	0.00	0.23	0.00	1.00

Variable definitions:
$\#CLIENTS_i$ = number of SEC clients held by reviewed firm i at the peer review opinion date.
$ZERO\_CLIENTS_i = 1$ if reviewed firm i has zero SEC clients at the peer review opinion date, $= 0$ otherwise.
$REVIEWER_i = 1$ if reviewed firm i performs at least one peer review on another firm, $= 0$ otherwise.
$SIZE_i$ = the number of personnel in reviewed firm i.
$LITIG_i = 1$ if reviewed firm i is subject to pending litigation at the peer review opinion date, $= 0$ otherwise.

Enron scandal (Barton, 2005).[11] We are left with a sample of 725 client gains and 749 client losses in the 12-month window after the opinions are issued. Of the 1001 audit firms in the sample, 757 firms (75.6%) have no net change in the number of clients, 133 firms (13.3%) have a net increase, and 111 (11.1%) have a net decrease. Since changing the audit firm is costly and most sample firms have few SEC clients, it is not surprising that most firms neither gain nor lose clients. Nevertheless, the number of client gains and losses is sufficiently large for us to perform a meaningful analysis.

3.2. Reviewed firm characteristics

Table 2 provides descriptive statistics on the reviewed firms. The number of SEC clients ($\#CLIENTS_i$) is highly skewed because the national audit firms have many clients whereas small firms have few clients. $ZERO\_CLIENTS_i$ is a dummy variable that equals one if the firm has no SEC clients (zero otherwise). Table 2 shows 32% of firms have no SEC clients. $REVIEWER_i$ is a dummy variable that equals one if the firm performs at least one review (zero otherwise). Table 2 shows 21% of firms perform at least one review. $SIZE_i$ equals the number of personnel in the firm. Mean and median values of $SIZE_i$ are 171 and 25, respectively, indicating skewness in the firm size distribution. To avoid problems caused by skewness, we log the size variable ($\ln(SIZE_i)$). The mean and median values of $\ln(SIZE_i)$ are very similar (3.18 and 3.22, respectively). Finally, $LITIG_i$ is a dummy variable that equals one if the firm is subject to litigation at the opinion date (zero otherwise). Table 2 shows 6.0% of reviewed firms are subject to litigation.

3.3. Peer review opinions

Table 3 provides descriptive statistics on the 1001 opinions. Panel A shows 960 opinions (95.9%) are unmodified, 34 (3.4%) are modified, and only 7 (0.7%) are adverse. The low

[11] In April 2004, Ernst & Young was banned from accepting new SEC clients for a period of 6 months. This ban is outside of Ernst & Young's 12-month window. No other firm was subject to a ban during its 12-month window.

Table 3
Descriptive statistics for peer review opinions

Panel A: Types of peer review opinions and the number of weaknesses disclosed in opinions

Number of weaknesses per opinion	Type of opinion				Number of weaknesses (= weaknesses per opinion × number of opinions)
	Unmodified	Modified	Adverse	Total	
0	453	0	0	453	0
1	233	8	0	241	241
2	142	11	0	153	306
3	80	7	0	87	261
4	30	6	1	37	148
5	17	2	1	20	100
6	4	0	2	6	36
7	0	0	1	1	7
8	1	0	0	1	8
9	0	0	2	2	18
Total	960	34	7	1001	1125
Mean no. weaknesses	1.04	2.50	6.57		

Panel B: Types of weaknesses disclosed in peer review opinions

	Number (%) of weaknesses	
Independence, integrity and objectivity	56	5.0%
Personnel management	70	6.2%
Client acceptance and continuation	10	0.9%
Engagement performance	707	62.8%
Monitoring	109	9.7%
Compliance with membership requirements of the SECPS	173	15.4%
Total	1125	100.0%

A reviewer issues a modified opinion if there are serious weaknesses with the reviewed firm's quality control procedures, its compliance with quality control procedures, or its compliance with the membership requirements of the SECPS. An adverse opinion is issued if the weaknesses are very serious. The reviewer issues an unmodified opinion if weaknesses are 'significant' but not serious. A weakness is significant if there was more than a remote possibility that the reviewed firm did not comply with professional auditing standards.

frequency of modified and adverse opinions indicates that most reviewers did not detect serious weaknesses. Of the 960 unmodified opinions, 453 are clean (i.e., zero weaknesses) whereas 507 disclose at least one significant weakness.[12] Therefore, the majority of firms (54.7%) did not receive clean opinions. Not surprisingly, modified and adverse opinions disclose more weaknesses than do unmodified opinions. The mean number of weaknesses is 1.04 in unmodified opinions, 2.50 in modified opinions, and 6.57 in adverse opinions. In total, the opinions disclose 1125 weaknesses of which most (62.8%) are for performance deficiencies on audit engagements (see Panel B).[13]

[12]The reviewed firm was required to send a letter to the AICPA after the review, detailing its plans for correcting the identified weaknesses. If the reviewed firm believed the reviewer's report was unfair, it could say so in its letter. We read all these letters and we found no cases in which reviewed firms disagreed with their reviews. This suggests that the reported weaknesses did actually exist.

[13]The opinions do not disclose the names of companies at which specific engagements were found to have problems.

3.4. The determinants of peer review opinions

Before testing H1, we provide multivariate evidence on the determinants of peer review opinions. The dependent variable ($OPINION_i$) is a rank-ordered variable that captures both the type of opinion issued (unmodified, modified, or adverse) and the number of weaknesses. We let higher values of $OPINION_i$ correspond to less favorable opinions.[14] The independent variables capture reviewed firm characteristics and the type of review. The reviewed firm variables indicate: (1) whether the firm has any SEC clients ($ZERO\_CLIENTS_i$); (2) whether the firm performs reviews on other firms ($REVIEWER_i$); (3) the firm's size (Ln($SIZE_i$)), and (4) whether the firm was subject to pending litigation ($LITIG_i$). The $AICPA_j$ and $FIRM\_ON\_FIRM_j$ variables indicate whether the review is performed by an AICPA team or by an audit firm.

The results are reported in model A of Table 4. Membership of the SECPS was mandatory for firms with SEC clients whereas it was voluntary for firms without SEC clients. Thus, the $ZERO\_CLIENTS_i$ variable indicates whether the audit firm voluntarily belonged to the SECPS. The negative $ZERO\_CLIENTS_i$ coefficients indicate that voluntary members of the SECPS were less likely to receive unfavorable opinions. This suggests that voluntary members had higher audit quality compared with firms that were required to belong to the SECPS. The negative coefficients for $REVIEWER_i$ imply that firms were less likely to receive unfavorable opinions if they performed reviews on other firms. The negative coefficients for Ln($SIZE_i$) are consistent with evidence that larger firms provide higher quality audits than do smaller firms (e.g., Becker et al., 1998). The positive $LITIG_i$ coefficients indicate that firms were more likely to receive unfavorable opinions if they were subject to litigation.[15] The positive $AICPA_j$ coefficient means that AICPA reviewers were more likely to issue unfavorable opinions.

Next, we examine the association between opinions and the characteristics of the reviewing firm in the sub-sample of firm-on-firm reviews ($N = 914$). We drop 34 reviews from the sample because the reviewing firm's characteristics are unavailable; our estimation sample thus consists of 880 reviews ($880 = 914–34$). The reviewing firm variables indicate: (1) the number of reviews performed by the reviewing firm ($\#REVIEWS_j$); (2) the reviewing firm's size (Ln($SIZE_j$)); and (3) whether the reviewing firm competes against the reviewed firm ($COMPETITOR\_x_j$). The reviewing and reviewed firms are assumed to be competitors if they are both national firms or if they are located within x miles of each other (the cut-off distances for x are 50 and 150 miles).

The results are reported in models B and C of Table 4. The coefficients on $COMPETITOR\_50_j$ and $COMPETITOR\_150_j$ are positive and statistically significant.[16] This means that reviewing firms are more likely to issue favorable opinions if they do not compete against reviewed firms. Therefore, a firm could expect to receive a more favorable opinion if it were reviewed by a firm that was not a competitor. This may have caused some clients to mistakenly conclude that audit quality was high in firms that received clean opinions from non-competing firms.

[14]Since $OPINION_i$ is a rank-ordered variable, we estimate the model using ordered probit. The ordered probit model has no intercept.

[15]The AICPA did not permit reviewers to test audit engagements that were subject to litigation. Therefore, the positive $LITIG_i$ coefficients are not directly driven by these engagements.

[16]In untabulated results, the competition coefficients are positive and significant at the 1% level for distances of 75, 100, and 125 miles.

Table 4
The determinants of peer review opinions
The dependent variable is $OPINION_i$. The model is estimated using ordered probit (standard errors are calculated using the Huber–White adjustment for heteroscedasticity)

	A		B		C	
	Coefft.	*z*-stat.	Coefft.	*z*-stat.	Coefft.	*z*-stat.
Reviewed firm characteristics						
$ZERO\_CLIENTS_i$	−0.45	−5.77***	−0.46	−5.34***	−0.48	−5.71***
$REVIEWER_i$	−0.56	−6.25***	−0.55	−5.77***	−0.54	−5.76***
Ln($SIZE_i$)	−0.06	−2.26**	−0.08	−2.53**	−0.08	−2.54**
$LITIG_i$	0.27	2.02**	0.20	1.48	0.24	1.76*
Reviewer characteristics						
$AICPA_j$	0.68	2.14**				
$FIRM\_ON\_FIRM_j$	0.14	1.09				
$COMPETITOR\_50_j$			0.38	4.20***		
$COMPETITOR\_150_j$					0.20	2.44**
$\#REVIEWS_j$			0.00	0.75	0.00	0.83
Ln($SIZE_j$)			0.06	1.87*	0.04	1.37

***Statistically significant at 1% level (two-tailed test); **statistically significant at 5% level (two-tailed test); and *statistically significant at 10% level (two-tailed test).
Model A is estimated using the full sample of 1001 reviews. Models B and C are estimated for 880 firm-on-firm reviews.
Variable definitions: $OPINION_i$ = rank-ordered variable capturing the peer review opinion issued to firm *i*. We make two assumptions when ordering opinions. First, adverse opinions are less favorable than modified opinions and modified opinions are less favorable than unmodified opinions. Second, within each opinion type, opinions are less favorable when they disclose more weaknesses. We let higher values of $OPINION_i$ correspond to less favorable opinions.
$ZERO\_CLIENTS_i = 1$ if reviewed firm *i* has zero SEC clients at the peer review opinion date, $= 0$ otherwise.
$REVIEWER_i = 1$ if reviewed firm *i* performs at least one peer review on another firm, $= 0$ otherwise.
Ln($SIZE_i$) = the natural log of the number of personnel in reviewed firm *i*.
$LITIG_i = 1$ if reviewed firm i is subject to pending litigation at the peer review opinion date, $= 0$ otherwise.
$AICPA_j = 1$ if the review is performed by an AICPA team, $= 0$ otherwise.
$FIRM\_ON\_FIRM_j = 1$ if the review is performed by an audit firm, $= 0$ otherwise.
$COMPETITOR\_x_j = 1$ if the reviewing firm is a competitor with the reviewed firm, $= 0$ otherwise. The reviewing firm and the reviewed firm are assumed to be competitors if: (1) they are both national firms (PricewaterhouseCoopers, Ernst & Young, KPMG, Deloitte & Touche, Grant Thornton, BDO Seidman, or McGladrey & Pullen), or (2) they are located within *x* miles of each other. The cut-off distances for *x* are 50 and 150 miles.
$\#REVIEWS_j$ = the number of peer reviews performed by reviewing firm *j*.
Ln($SIZE_j$) = natural log of the number of personnel in reviewing firm *j*.

3.5. Peer review opinions and gains (losses) of audit clients

Panel A of Table 5 provides descriptive statistics on client gains and losses in the 12-month window after firms receive opinions. The number of clients gained ($\#CLIENTS\_GAINED_{i,+12}$) ranges from 0 to 56 with a mean of 0.72. The number of clients lost ($\#CLIENTS\_LOST_{i,+12}$) ranges from 0 to 107 with a mean of 0.75. The net change in the

Table 5
Gains (losses) of audit clients in the 12 months following issuance of peer review opinions

Panel A: Descriptive statistics for the numbers of audit clients gained and lost

Variable	Mean	Std. dev.	Minimum	Maximum
$\#CLIENTS\_GAINED_{i,+12}$	0.72	3.79	0.00	56.00
$\#CLIENTS\_LOST_{i,+12}$	0.75	5.79	0.00	107.00
$\Delta\#CLIENTS_{i,+12}$	−0.02	2.94	−51.00	16.00
$\Delta\text{Ln}(\#CLIENTS_{i,+12})$	0.03	0.43	−1.95	2.20
$\%\Delta\#CLIENTS_{i,+12}$	0.01	0.21	−1.33	3.00

Panel B: Mean values for client change variables (after sorting audit firms by size)

	Number of firms ($N = 1001$)	$\Delta\text{Ln}(\#CLIENTS_{i,+12})$	$\%\Delta\#CLIENTS_{i,+12}$
Small firms: 0 client	317	0.011	0.019
1 client	271	−0.019	−0.013
2–5 clients	254	0.041	0.010
6–10 clients	78	0.131	0.048
11–20 clients	43	0.214	0.016
>20 clients	31	0.224	0.056
National firms	7	−0.347	−0.012

The seven national firms are Deloitte & Touche, Ernst & Young, KPMG, PricewaterhouseCoopers, Grant Thornton, McGladrey & Pullen, and BDO Seidman. Arthur Andersen is excluded from the sample because its opinion was issued after the Enron scandal began to unfold.

Variable definitions:

$\#CLIENTS\_GAINED_{i,+12}$ = number of SEC clients gained by firm i in the 12-month period following the peer review opinion date as a result of outgoing firms being dismissed.

$\#CLIENTS\_LOST_{i,+12}$ = number of SEC clients lost by firm i as a result of being dismissed in the 12-month period following the peer review opinion date.

$\Delta\#CLIENTS_{i,+12} = \#CLIENTS\_GAINED_{i,+12} - \#CLIENTS\_LOST_{i,+12}$.

$\Delta\text{Ln}(\#CLIENTS_{i,+12}) = \text{Ln}(1+\#CLIENTS\_GAINED_{i,+12}) - \text{Ln}(1+\#CLIENTS\_LOST_{i,+12})$.

$\#CLIENTS_i$ = Number of SEC clients held by reviewed firm i at the peer review opinion date.

$\%\Delta\#CLIENTS_{i,+12} = (\#CLIENTS\_GAINED_{i,+12} - \#CLIENTS\_LOST_{i,+12})/(1+\#CLIENTS_i)$.

number of clients ($\Delta(\#CLIENTS_{i,+12})$) ranges from −51 to +16 with a mean of −0.02. These three variables are highly skewed because a few large firms gain (or lose) relatively large numbers of clients.

We tackle the skewness problem using three transformed variables. First, we subtract the log of clients lost from the log of clients gained (we add a one before taking logs because some firms gain or lose zero clients):

$$\Delta\text{Ln}(\#CLIENTS_{i,+12}) = \text{Ln}(1 + \#CLIENTS\_GAINED_{i,+12}) - \text{Ln}(1 + \#CLIENTS\_LOST_{i,+12}).$$

Second, we divide the net change in the number of clients by the number of clients held at the opinion date (we add a one in the denominator because some firms have zero clients at the opinion date):

$$\%\Delta(\#CLIENTS_{i,+12}) = \frac{\#CLIENTS\_GAINED_{i,+12} - \#CLIENTS\_LOST_{i,+12}}{1 + \#CLIENTS_i}.$$

Third, we create a discrete variable that indicates whether the reviewed firm experienced an increase, no change, or a decrease in the number of clients:

$$Sign[\Delta(\#CLIENTS_{i,+12})] = +1 \text{If } \Delta(\#CLIENTS_{i,+12}) > 0$$
$$Sign[\Delta(\#CLIENTS_{i,+12})] = 0 \quad \text{If } \Delta(\#CLIENTS_{i,+12}) = 0$$
$$Sign[\Delta(\#CLIENTS_{i,+12})] = -1 \text{ If } \Delta(\#CLIENTS_{i,+12}) < 0.$$

For all three transformed variables, positive values indicate net client gains and negative values indicate net client losses.

Panel A of Table 5 reveals that the $\Delta\text{Ln}(\#CLIENTS_{i,+12})$ and $\%\Delta(\#CLIENTS_{i,+12})$ variables are much less highly skewed than are the untransformed variables. Panel B reports mean values for $\Delta\text{Ln}(\#CLIENTS_{i,+12})$ and $\%\Delta(\#CLIENTS_{i,+12})$ after sorting the firms by size. There is no monotonic relation between our transformed variables and firm size, so Panel B provides evidence that the transformations overcome the skewness in firm size.

Panel A, Table 6 reports the mean values of $\Delta\text{Ln}(\#CLIENTS_{i,+12})$ and $\%\Delta(\#CLIENTS_{i,+12})$ after sorting opinions from clean to adverse. There is a clear monotonic relation between net client changes and opinions. For example, the mean of $\%\Delta(\#CLIENTS_{i,+12})$ is +3.5% for clean opinions, −0.3% for unmodified opinions with at least one weakness, and −6.8% for modified or adverse opinions. Panel B reports the number of firms experiencing a net increase, no change, or a net decrease in the number of clients. These numbers are not affected by outliers or skewness because they capture the sign of net client changes, not the number of clients gained and lost.[17] Of the 453 firms that received clean opinions, 60 (13.2%) enjoyed an increase in the number of clients and only 29 (6.4%) experienced a decrease. Of the 41 firms that received modified or adverse opinions, only 2 (4.9%) experienced net client gains whereas 12 (29.3%) experienced net client losses. The association between opinions and the sign of net client changes is statistically significant at better than the 1% level (two-tailed).

4. Peer review opinions and subsequent gains and losses of clients

4.1. The multivariate model

We now test whether firms gained clients after receiving clean opinions and lost clients after receiving modified or adverse opinions. The dependent variables are the three transformed variables discussed in Section 3.5: (1) $\Delta\text{Ln}(\#CLIENTS_{i,+12})$, (2) $\%\Delta(\#CLIENTS_{i,+12})$, and (3) $Sign[\Delta(\#CLIENTS_{i,+12})]$. The opinion variables are $CLEAN_i$, MOD_ADV_i, and $\text{Ln}(1+\#WEAKNESS_i)$. $CLEAN_i$ equals one if the opinion is unmodified with zero weaknesses (zero otherwise). MOD_ADV_i equals one if the opinion is modified or adverse (zero otherwise). $\text{Ln}(1+\#WEAKNESS_i)$ equals the log of one plus the number of weaknesses disclosed in the opinion.

For each dependent variable, we control for client changes in the 12 months prior to the opinion date ($\Delta\text{Ln}(\#CLIENTS_{i,-12})$, $\%\Delta(\#CLIENTS_{i,-12})$, $Sign[\Delta(\#CLIENTS_{i,-12})]$). In other words, our research design includes lagged dependent variables as controls because

[17]For example, a firm with a net gain of one client is given the same weight as a firm with a net gain of ten clients.

Table 6
Peer review opinions and subsequent client gains (losses) in the 12-month period after opinions are issued

Panel A: Mean values of $\Delta\text{Ln}(\#CLIENTS_{i,+12})$ *and* $\%\Delta\#CLIENTS_{i,+12}$[a,b]

Opinions received by reviewed firms	Change in log of number of clients	% Change in number of clients	Number of reviewed firms ($N = 1001$)
	$\Delta\text{Ln}(\#CLIENTS_{i,+12})$	$\%\Delta\#CLIENTS_{i,+12}$	
Clean	0.066	0.035	453
Unmodified with at least one weakness	0.021	−0.003	507
Modified or adverse	−0.189	−0.068	41

Panel B: Number of reviewed firms experiencing an increase, no change, or decrease in the number of clients[c]

Opinions received by reviewed firms	Increase, no change, or decrease in the net number of clients			Number of reviewed firms ($N = 1001$)
	$\Delta\#CLIENTS_{i,+12} > 0$	$\Delta\#CLIENTS_{i,+12} = 0$	$\Delta\#CLIENTS_{i,+12} < 0$	
Clean	60	364	29	453
Unmodified with at least one weakness	71	366	70	507
Modified or adverse	2	27	12	41

[a]See Table 5 for variable definitions.
[b]Hypotheses tests (two-tailed p-values):

1. Variable mean is higher for firms receiving clean opinions compared to all other firms.
   $\Delta\text{Ln}(\#\text{CLIENTS}_{i,+12})$: $t = 2.23$, $p = 0.03$ $\%\Delta\#\text{CLIENTS}_{i,+12}$: $t = 3.19$, $p < 0.01$.
2. Variable mean is lower for firms receiving modified or adverse opinions compared to all other firms.
   $\Delta\text{Ln}(\#\text{CLIENTS}_{i,+12})$: $t = -3.39$, $p < 0.01$ $\%\Delta\#\text{CLIENTS}_{i,+12}$: $t = -2.47$, $p = 0.01$.

[c]Hypotheses tests (two-tailed p-values):

1. The likelihood of experiencing a net increase in the number of clients rather than a net decrease is higher for firms receiving clean opinions compared to all other firms ($t = 3.12$, $p < 0.01$).
2. The likelihood of experiencing a net decrease in the number of clients rather than a net increase is higher for firms receiving modified or adverse opinions compared to all other firms ($t = 3.16$, $p < 0.01$).

client gains and losses could be persistent over time. Some reviewed firms have no SEC clients at the opinion date and, by definition, these firms cannot lose clients. We control for this truncation by including a dummy variable that equals one if the reviewed firm has zero clients ($ZERO\_CLIENTS_i$).[18] We also control for whether the firm performs reviews on other firms ($REVIEWER_i$), firm size (Ln($SIZE_i$)), and whether the firm is subject to pending litigation ($LITIG_i$).

Table 7 reports the multivariate results. The significant positive coefficients on $CLEAN_i$ indicate that firms gained clients after receiving clean opinions. Conversely, the significant negative coefficients on MOD_ADV_i imply that firms lost clients after receiving modified or adverse opinions. The significant negative coefficients on Ln($1+\#WEAKNESS_i$) indicate that firms lost more clients after they received opinions with more weaknesses. The evidence therefore suggests that peer reviews affected clients' dismissals and appointments of audit firms.[19]

4.2. Further evidence of opinion informativeness

To provide further evidence that opinions were informative about the quality of the audit firm, we perform four additional tests. First, we examine the association between opinions and net client gains in the 12 months preceding the issuance of opinions. We expect that this association would be significant if opinions only reflect what was already known about reviewed firms rather than actually revealing information. Untabulated tests reveal no significant association between opinions and client gains and losses in the preceding year. Therefore, the timing of client changes suggests that the reviewers' opinions were informative about the quality of the audit firm.

Second, we sort opinions subjectively according to whether weaknesses would have been observable or unobservable to clients prior to the issuance of the opinions.[20] If opinions provided useful information about audit quality, we expect that the gains and losses of clients are associated with unobservable weaknesses but not with observable weaknesses. Untabulated results reveal highly significant associations between net client gains and unobservable weaknesses. On the other hand, we find no significant association between net client gains and observable weaknesses. Therefore, the association between opinions and client changes is not driven by weaknesses that would have been observable to clients prior to issuance.

Third, to test the external validity of opinions as indicators of audit quality, we examine the association between opinions and Accounting and Auditing Enforcement Releases (AAERs). AAERs are issued by the SEC for materially misleading financial statements

[18]In untabulated tests, we control for a truncation effect in firms that have only one or two SEC clients. We find no evidence of a truncation effect for these firms.

[19]Results are qualitatively similar when standard errors are adjusted for clustering of observations by year and by reviewing firm.

[20]As shown in Table 1, peer review opinions disclose six types of weaknesses: (1) Independence, (2) Personnel management, (3) Client acceptance and continuation, (4) Engagement performance, (5) Monitoring, and (6) Compliance with membership requirements of the SECPS. We code 160 (22.6%) engagement performance weaknesses as observable and 547 as unobservable. The other five types of weaknesses relate to problems with the audit firm's internal system of quality control. Since clients may not observe the audit firm's internal control weaknesses (e.g., the failure to maintain a "restricted client list"), we code weaknesses (1), (2), (3), (5) and (6) as "unobservable".

and prior studies use them to infer audit quality (e.g., Feroz et al., 1991; Beasley, 1996; Bonner et al., 1998). If opinions truthfully capture audit quality, we expect that audits are less likely to be subject to AAERs in firms that receive clean opinions. Of the 1001 firms in our sample, 33 (3.3%) have clients who are subject to AAERs. These AAERs relate to material misstatements that occurred prior to the issuance of peer review opinions. We find that AAERs are negatively associated with clean opinions ($p<0.01$) and positively associated with the number of weaknesses ($p<0.01$).[21] We therefore conclude that the opinions truthfully capture audit quality.[22]

Fourth, existing clients were probably better informed than potential clients about audit firms' weaknesses. Hence, if opinions were not informative to potential clients, opinions should predict client losses but not client gains. On the other hand, if opinions were informative, we expect that the association between opinions and client changes would be driven by both client losses and client gains. Untabulated results reveal the association is driven by both losses and gains. This suggests that clients were unaware of audit firms' weaknesses before those weaknesses were disclosed in opinions.

4.3. Robustness tests

In a series of robustness tests, we first examine if our results are sensitive to the size of the reviewed firm. We re-estimate the models in Table 7 after dropping the national audit firms and the coefficients are very similar to those tabulated. We also estimate the models for various firm size partitions. The $CLEAN_i$ coefficients are consistently positive and the MOD_ADV_i and $\text{Ln}(1+WEAKNESS_i)$ coefficients are consistently negative. We find no evidence that the association between opinions and client changes is different across size partitions. Second, we examine whether the results are sensitive to excluding the 41 firms that received modified or adverse opinions. After dropping these firms, the results for $CLEAN_i$ and $\text{Ln}(1+WEAKNESS_i)$ are not substantially changed. Firms gained clients after receiving clean opinions and they lost clients when unmodified opinions disclosed more weaknesses. Third, we investigate whether the results differ for the three types of reviews. Most reviews (914) are conducted by audit firms and the results for this sub-sample are very similar to the full sample (reported in Table 7). Only 87 reviews are not performed by audit firms (14 are by AICPA teams and 73 are by associations). Nevertheless, the results are similar with this small sub-sample (the $\text{Ln}(1+WEAKNESS_i)$ coefficients are negative and have two-tailed p-values ranging from 0.028 to 0.107). We find no evidence that the information content of opinions is different for the three types of reviews. Fourth, we include controls for three additional characteristics of the reviewed firm: (1) organizational form (i.e., LLP, LLC, corporation, sole proprietorship, unlimited liability partnership); (2) the fraction of firm revenue accounted for by management advisory services; and (3) the fraction of firm revenue accounted for by taxation services.[23] We find these firm characteristics do not explain net client gains or the peer review opinions; our other conclusions are unchanged. Fifth, we re-estimate the models in Table 7

[21]There are two possible explanations for the significant association between opinions and AAERs. First, AAERs and opinions might be independently correlated with audit quality. Second, the SEC might use opinions when deciding whether to investigate problematic audit engagements. Our data do not permit us to distinguish between these two explanations.

[22]Our opinion variables remain significant after we add an AAER dummy variable to our models in Table 7.

[23]We obtain data on these variables from firms' annual reports.

Table 7
Peer review opinions and subsequent client gains (losses) by reviewed firms
The $\Delta\text{Ln}(\#CLIENTS_{i,+12})$ and $\%\Delta\#CLIENTS_{i,+12}$ models are estimated using OLS. The $Sign[\Delta\#CLIENTS_{i,+12})]$ models are estimated using ordered probit. The models are estimated using the full sample of 1001 peer reviews. Standard errors are calculated using the Huber–White adjustment for heteroscedasticity. *T*-statistics and *z*-statistics are shown in parentheses

	Expected sign	The dependent variable is					
		% Change in log of number of clients		% Change in number of clients		Sign of change in number of clients	
		$\Delta\text{Ln}(\#CLIENTS_{i,+12})$		$\%\Delta\#CLIENTS_{i,+12}$		$Sign[\Delta\#CLIENTS_{i,+12})]$	
$CLEAN_i$	+	0.05 (2.01)**		0.04 (2.84)***		0.19 (2.35)**	
MOD_ADV_i	−	−0.18 (−2.65)***		−0.06 (−2.19)**		−0.59 (−2.77)***	
$\text{Ln}(1+\#WEAKNESS_i)$	−		−0.07 (−3.00)***		−0.04 (−3.26)***		−0.22 (−3.06)***
$\Delta\text{Ln}(\#CLIENTS_{i,-12})$	?	0.17 (2.81)***	0.17 (2.85)***				
$\%\Delta\#CLIENTS_{i,-12}$	?			−0.00 (−0.03)	−0.00 (−0.03)		
$Sign[\Delta\#CLIENTS_{i,-12})]$	?					0.20 (1.68)*	0.20 (1.69)*
$ZERO\_CLIENTS_i$	+	−0.03 (−1.39)	−0.03 (−1.39)	0.00 (0.27)	0.00 (0.26)	−0.05 (−0.90)	−0.05 (−0.88)
$REVIEWER_i$	?	−0.04 (−1.07)	−0.04 (−1.04)	−0.02 (−1.07)	−0.02 (−1.02)	−0.09 (−0.88)	−0.08(−0.82)
$\text{Ln}(SIZE_i)$	?	0.02 (1.37)	0.02 (1.58)	0.01(1.92)*	0.01 (2.06)**	0.30 (0.89)	0.04 (1.10)
$LITIG_i$	−	−0.16 (−2.12)**	−0.15 (−2.04)**	−0.05 (−1.66)*	−0.05 (−1.60)	−0.37 (−1.79)*	−0.35 (−1.70)*
INTERCEPT	?	−0.02 (−0.37)	0.03 (0.85)	−0.03 (−1.47)	0.01 (0.49)		

***Statistically significant at 1% level (two-tailed test); **Statistically significant at 5% level (two-tailed test); *Statistically significant at 10% level (two-tailed test)
Variable definitions:
$\#CLIENTS\_GAINED_{i,+12}$ = number of SEC clients gained by firm *i* in the 12-month period following the peer review opinion date as a result of outgoing firms being dismissed.

$\#CLIENTS\_LOST_{i,+12}$ = number of SEC clients lost by firm i as a result of being dismissed in the 12-month period following the peer review opinion date.
$\#CLIENTS\_GAINED_{i,-12}$ = number of SEC clients gained by firm i in the 12-month period before the peer review opinion date as a result of outgoing firms being dismissed.
$\#CLIENTS\_LOST_{i,-12}$ = number of SEC clients lost by firm i as a result of being dismissed in the 12-month period before the peer review opinion date.
$\Delta\text{Ln}(\#CLIENTS_{i,+12}) = \text{Ln}(1+\#CLIENTS\_GAINED_{i,+12}) - \text{Ln}(1+\#CLIENTS\_LOST_{i,+12})$.
$\%\Delta\#CLIENTS_{i,+12} = (\#CLIENTS\_GAINED_{i,+12} - \#CLIENTS\_LOST_{i,+12})/(1+\#CLIENTS_i)$.
$\Delta\text{Ln}(\#CLIENTS_{i,-12}) = \text{Ln}(1+\#CLIENTS\_GAINED_{i,-12}) - \text{Ln}(1+\#CLIENTS\_LOST_{i,-12})$.
$\%\Delta\#CLIENTS_{i,-12} = (\#CLIENTS\_GAINED_{i,-12} - \#CLIENTS\_LOST_{i,-12})/(1+\#CLIENTS_i)$.
$Sign[\Delta\#CLIENTS_{i,+12})] = +1$ if firm i experiences a net client gain, $= 0$ if no net change, $= -1$ if net client loss in the 12-month period following the peer review opinion date.
$Sign[\Delta\#CLIENTS_{i,-12})] = +1$ if firm i experiences a net client gain, $= 0$ if no net change, $= -1$ if net client loss in the 12-month period before the peer review opinion date.
$CLEAN_i$ = one if firm i receives a clean peer review opinion (i.e., unmodified with zero weaknesses), $= 0$ otherwise.
MOD_ADV_i = one if firm i receives a modified or adverse opinion, $= 0$ otherwise.
$\#WEAKNESS_i$ = the number of weaknesses disclosed in firm i's peer review opinion.
$ZERO\_CLIENTS_i$ = one if firm i has zero SEC clients at the peer review opinion date, $= 0$ otherwise.
$REVIEWER_i$ = one if firm i performs at least one peer review on another firm, $= 0$ otherwise.
$\text{Ln}(SIZE_i)$ = the natural log of the number of personnel in firm i.
$LITIG_i$ = one if firm i is subject to pending litigation at the peer review opinion date, $= 0$ otherwise.

after dropping the 757 firms that experience no net change in the number of clients. The results are almost identical to those tabulated. Finally, we predict expected and unexpected opinions using the opinion model reported in Table 4. We find that client changes are significantly associated with unexpected opinions but not with expected opinions. This provides further evidence that clients responded to the information content in opinions.

5. Conclusions

In response to the Enron and WorldCom scandals, Congress passed the Sarbanes–Oxley Act in 2002, which terminated self-regulation for firms that audit public companies. As a result, the peer review program was replaced by independent PCAOB inspections. Critics of self-regulation had argued that peer reviews lacked credibility. We investigate the credibility of peer reviews by examining audit firm dismissals and appointments in the 12-month period following issuance of opinions. We find that the reviewed firms gained clients after receiving clean opinions and lost clients after receiving modified or adverse opinions. Additional tests indicate that the opinions were informative about the quality of the audit firms. First, the association between opinions and net client gains is significant in the 12 months after opinion issuance but insignificant in the preceding 12 months. Second, net client gains are associated with weaknesses that would have been unobservable to clients prior to opinion issuance, but net client gains are not associated with observable weaknesses. We conclude that the peer reviews provided credible information about the quality of audit firms.

This conclusion has an important policy implication for the new regulatory regime under the PCAOB. When PCAOB inspectors find weaknesses in audit firms, the weaknesses will be made public only if firms fail to take corrective actions within 12 months (Public Company Accounting and Oversight Board (PCAOB), 2003a, b).[24] In contrast, peer review opinions were made publicly available by the AICPA as soon as reviews were completed. Our results indicate potential users may find it more difficult to assess audit firm quality because PCAOB inspections are not made public. This may in turn reduce audit firms' market-based incentives to maintain high quality. It may therefore be desirable for the PCAOB to disclose firms' weaknesses as soon as inspections are completed.

Although we find evidence that self-regulation was credible, our paper does not provide unequivocal support for the peer review program. First, reviewers rarely issued modified or adverse opinions to audit firms, which may indicate that some reviewers failed to detect serious problems. It is possible that PCAOB inspectors will uncover more problems than peer reviewers found. Second, we find that reviewing firms were less likely to disclose problems if they did not compete against reviewed firms. This may have caused some clients to mistakenly conclude that audit quality was high following the issuance of clean opinions. Since the AICPA used opinions to monitor problems at reviewed firms, the clean

[24]PCAOB (2003a) states (p. 9), "If an inspection report includes criticisms of, or describes potential defects in, a firm's quality control systems, those portions of the report may be made public only if the firm fails to address those matters to the Board's satisfaction within 12 months of the issuance of the final inspection report." To our knowledge, the PCAOB has not explained why defects will not be made public. We contacted the PCAOB to find out the reasons but we were simply told that the decision had been made by Congress.

opinions issued by non-competing firms may have impaired the effectiveness of self-regulation.

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