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Did Sarbanes-Oxley Lead to Better Financial Reporting?

A Survey of Recent Research

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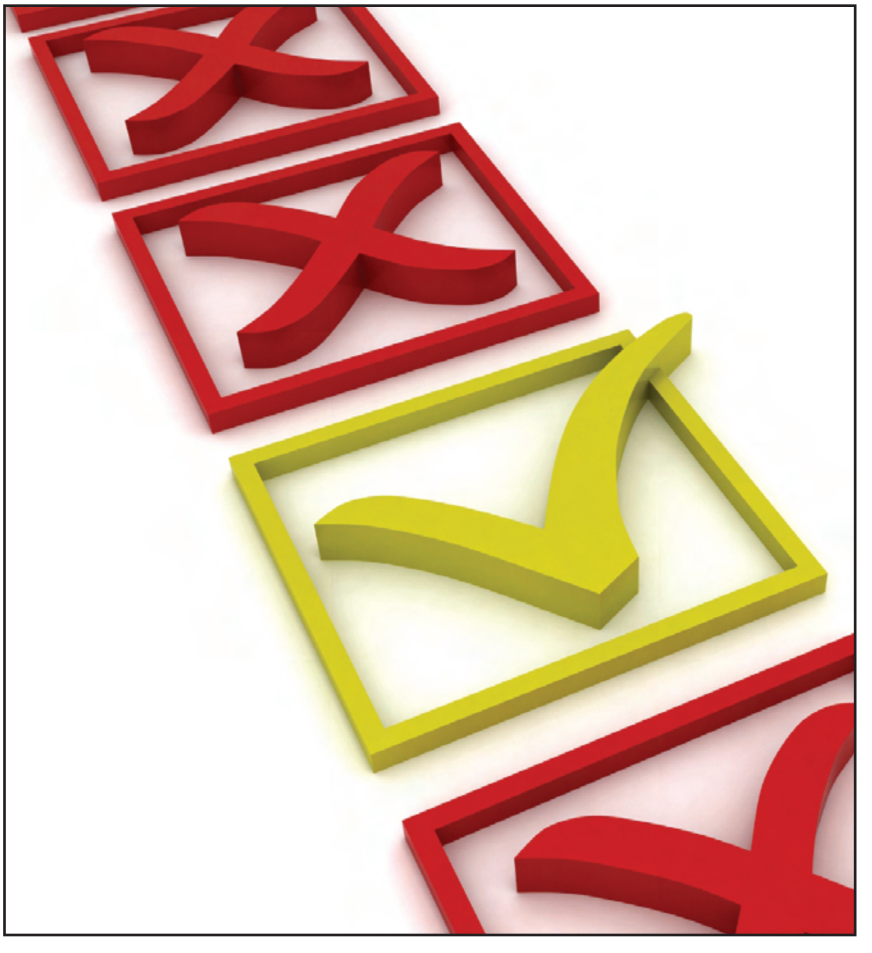

On July 25, 2002, Congress overwhelmingly passed the landmark Sarbanes-Oxley Act of 2002 (SOX) in reaction to a series of financial accounting scandals involving such companies as Enron and WorldCom, as well as to the demise of Arthur Andersen. Since the passage of SOX, there has been a great deal of controversy about the costs and benefits of this dramatic expansion of federal oversight and regulation. One author dubbed SOX "quack corporate governance" and noted that "legislation in the immediate aftermath of a public scandal or crisis is a formula for poor public policymaking" (Roberta Romano, "The Sarbanes-Oxley Act and the Making of Quack Corporate Governance," *Yale Law Journal*, vol. 114, pp. 1521–1612, May 2005).

Recently, several accounting studies have begun to shed light on another aspect of the SOX debate: What benefits arose from the passage of SOX? Five of these studies are described and summarized below.

Costs and Benefits of SOX

Until recently, the debate about SOX has tended to be a one-sided affair—the criticism of the act's high costs dominating any praise of its potential benefits. This is not surprising, given that a cost argument is the easier one to make. The costs associated with SOX were mostly front-loaded, coming at the beginning of the process before any benefits are realized. In addition, the direct costs of implementing SOX are relatively easy to tabulate and report. A number of academic studies have confirmed the anecdotal and survey-based evidence that the costs to comply with SOX have been quite high (e.g., Jagan Krishnan, Dasaratha Rama, and Yinghong Zhang, "Costs to Comply with SOX Section 404," *Auditing: A Journal of Practice & Theory*, vol. 27, no. 1, pp. 169–186, May 2008).

SOX was explicitly intended to improve financial reporting and restore investor confidence in those reports. Several provisions were specifically designed to fulfill this purpose. SOX section 302 calls for CEOs and CFOs to certify financial reports—with significant criminal penalties for doing so falsely—in order to promote honest and transparent financial reporting. The provisions of section 404, requiring the documentation and auditing of internal controls, were intended to improve the quality of financial reports by reducing unintentional and intentional misstatements. A number of provisions were intended to improve the quality of audits. SOX provided for the creation of the Public Company Accounting Oversight Board (PCAOB) and gave it the mandate to inspect audit firms. SOX also includes provisions to increase auditor independence by prohibiting auditors from providing most forms of nonaudit services to audit clients, and by strengthening the relationship between the auditor and the audit committee.

While the costs of implementation can be directly observed and accumulated, the intended benefits of SOX—more accurate and reliable financial reporting—cannot be assessed as easily. In considering the potential benefits of SOX, there are several important questions:

- Have financial reports become more accurate or more reliable?
- If financial reports have become more accurate or more reliable, what is the monetary benefit to the economy?
- What is the value of greater investor confidence in companies' financial reports?

Discussion of Accounting Research

Recent accounting research has begun to make progress answering the first question: Have financial reports become more accurate or more reliable? While these studies do not attempt to monetize the benefits from SOX, they take the first step of measuring whether financial reports have become more accurate or reliable since the passage of SOX. This article summarizes five of these studies (see the *Exhibit* for information on each). The authors chose these five papers from among the hundreds in the field because they specifically address reporting quality before and after SOX. Many articles address earnings management or the quality of accounting, but these five specifically address whether financial reporting quality appears to have changed—on an overall basis, encompassing thousands of companies—post-SOX. Included in the five are two papers that are still in the journal review process, so as to provide the most current information possible. (This approach is consistent with normal procedure in the academic literature.)

The difficult challenge facing accounting researchers in these studies is measuring financial reporting quality. What constitutes reporting "quality" and how can we observe greater or lesser quality? Four of the studies evaluate reporting quality by measuring "abnormal" accruals (also called "discretionary" accruals). This is a widely accepted method in the financial accounting literature that has been used in hundreds of academic studies over the past two decades. Much of this literature uses variations of the "Jones model" (Jennifer J. Jones, "Earnings Management During Import Relief Investigations," *Journal of Accounting Research*, vol. 29, no. 2, pp. 193-228, 1991).

The current version of the Jones model uses a company's revenue, earnings, and level of productive assets to estimate a normal level of accruals (accruals are measured in some studies as the difference between operating income and operating cash flows, and in other studies as the change in working capital or the change in noncash assets and liabilities). Accruals in excess of a normal level, either in an income-increasing or income-decreasing direction, constitute possible earnings manipulation by management and, thus, lower the quality of financial reporting. In essence, abnormal accruals indicate that the accruals are outside the range that would be expected for the company, and a likely explanation is that management is manipulating the accruals to achieve a desired reporting outcome. Similarly, the IRS may review taxpayer data for abnormal deductions. If the deductions are outside the range of what is expected, given a taxpayer's income and other circumstances, then there is the potential that the taxpayer has manipulated the deductions.

Research using abnormal accruals to assess reporting quality is inherently different from what individual auditors do. Researchers are interested in overall patterns (e.g., is reporting quality higher post-SOX?), and they use thousands of companies and advanced statistical methods in the analysis. Practicing auditors are interested in whether a single company's reporting quality is sound, and they focus on the specifics of that particular setting (e.g., inventory reserve, bad debts reserve, warranty liability). This difference in approaches is significant—as different as cancer researchers studying thousands of people to find links between lifestyle and the incidence of cancer, as contrasted with an individual oncologist focusing on one patient's diagnosis and treatment.

In the final study, the authors measure reporting quality by directly measuring accrual reliability. Accruals are considered to be more reliable when they persist—that is, they tend to be found again in the following year's earnings. Unreliable accruals would be those that, because they are the result of intentional or unintentional misstatement, do not persist into the future. This method is also based on previous research.

Two of the studies also examine the use of "real" earnings management. In these cases, management changes the amount or timing of actual transactions, such as reducing advertising spending and inventory overproduction in order to manage earnings, rather than altering accruals to manage earnings (R. Z. Xu, G. K. Taylor, and M. T. Dugan, "Review of Real Earnings Management Literature," *Journal of Accounting Literature*, pp. 195–228, 2007). Xu et al. describe real earnings management: "As an alternative to using accruals and accounting choices, firms engaged in real earnings management 'undertake a financing, investment, or operating activity primarily for the income effect, or "accounting by-product," rather than for the net present value benefit of the activity for the firm's stockholders [Hand et al., 1990, p. 68].'"

Lobo and Zhou

In the first study, Gerald J. Lobo and Jian Zhou ("Did Conservatism in Financial Reporting Increase After the Sarbanes-Oxley Act? Initial Evidence," *Accounting Horizons*, vol. 20, no. 1, pp. 57–73, March 2006) define higher quality reporting as more conservative reporting. They measure the conservatism of financial reports before and after SOX. Conservatism is measured in two ways: first as the level of income-increasing abnormal accruals and, second, as the relative timing of the recognition of gains and losses. Fewer income-increasing abnormal accruals would constitute greater conservatism. Later recognition of gains compared to losses would also constitute greater conservatism. They find that companies post-SOX—compared to those pre-SOX—report fewer income-increasing abnormal accruals and relatively later recognition of gains. They interpret the greater conservatism after SOX as evidence of higher reporting quality. Thus, this study's results are consistent with SOX promoting higher quality financial reporting.

Cohen, Dey, and Lys

In the second study, Daniel A. Cohen, Aiyesha Dey, and Thomas Z. Lys ("Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods," *The Accounting Review*, vol. 83, no. 3, pp. 757–788, 2008) look at the level of accruals-based earnings management in three time periods: the prescandal period of 1987–1999, the scandal period of 2000–2001, and the post-SOX period of 2002–2005. They measure earnings management using income-increasing abnormal accruals, as well as a measure of real earnings management.

Cohen et al. find evidence that accruals-based earnings management increased in the prescandal years, sharply increased in the scandal years, and then decreased in the post-SOX years. This is consistent with a SOX-related benefit of better financial reporting. They also find that real earnings management increased in the post-SOX period. They suggest that the effect of SOX has been to reduce accruals-based earnings management, with some shift to real earnings management, arguing that companies may have an incentive to use real earnings management in the post-SOX period because it is more difficult for auditors and regulators to detect. This suggests that post-SOX financial reporting quality has improved in one way

EXHIBIT
Benefits of SOX: Recent Research

Study	Description of Sample	Main Results
Gerald J. Lobo and Jian Zhou, "Did Conservatism in Financial Reporting Increase After the Sarbanes-Oxley Act? Initial Evidence," *Accounting Horizons*, vol. 20, no. 1, March 2006.	14,396 company-year observations, representing 4,441 companies with equal fiscal years before and after SOX (2,757 with two years before and after SOX; 1,684 with one year before and after SOX).	Companies' financial reports are more conservative in the post-SOX period. Conservatism is found in two ways. First, companies employ less income-increasing abnormal accruals. Second, they recognize losses earlier and gains later.
Daniel A. Cohen, Aiyesha Dey, and Thomas Z. Lys, "Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods," *The Accounting Review*, vol. 83, no. 3, 2008.	8,157 nonfinancial companies from 1987–2005, for a total of 87,217 company-year observations. Periods categorized as prescandal (1987–1999), scandal (2000–2001), and post-SOX (2002–2005).	Accruals-based earnings management increased over the pre-SOX period, accelerating in the scandal period, and then decreasing post-SOX. However, real earnings management (by manipulating actual spending decisions) increased in the post-SOX period. Companies seem to be replacing accruals-based earnings management with less detectable real earnings management since SOX.
Eli Bartov and Daniel A. Cohen, "The 'Numbers Game' in the Pre- and Post-Sarbanes-Oxley Eras," *Journal of Accounting, Auditing and Finance*, vol. 24, no. 4, 2009.	87,697 company-quarter observations from nonregulated industries from 1987–2006, representing 6,186 companies.	Reduced frequency of companies just meeting or beating analysts' earnings forecasts. This is due to lower accruals-based earnings management and fewer efforts to downwardly manage analysts' expectations. However, real earnings management has increased since SOX.
J. V. Carcello, C. W. Hollingsworth, and S. Mastrolia, "The Effect of PCAOB Inspections on Big 4 Audit Quality," working paper, 2009.	4,719 company-years between 2004–2006 of Big Four clients audited in the year before and two years after the audit firm's initial PCAOB inspection.	Clients report lower income-increasing discretionary accruals in the year after their Big Four audit firm's initial PCAOB inspection, with a further decline in the second year after the inspection. Similar tests after AICPA peer review inspections find no similar decrease.
Dennis J. Chambers and Jeff L. Payne, "Audit Quality and Accrual Reliability: Evidence from the Pre- and Post-Sarbanes-Oxley Periods," working paper, 2009.	21,679 company-years, over periods 1998–2001 (pre-SOX) and 2003–2006 (post-SOX), representing 5,080 companies.	The reliability of reported accruals increased in the post-SOX period for companies audited by both Big Four (Six) and non–Big Four audit firms. The greatest improvement in accrual reliability occurred for clients of non-Big N auditors, with potentially impaired independence in the pre-SOX period.

(reduced accruals-based earnings management), but has declined in another way (increased real earnings management).

Bartov and Cohen

Eli Bartov and Daniel A. Cohen ("The 'Numbers Game' in the Pre- and Post-Sarbanes-Oxley Eras," *Journal of Accounting, Auditing and Finance*, vol. 24, no. 4, pp. 505–534, 2009) look at a particular setting where earnings management often exists. Prior accounting studies have discovered evidence from the pre-SOX period that companies used earnings management techniques to just meet or beat analyst earnings forecasts. Bartov and Cohen look for evidence that this form of earnings management behavior decreased in the post-SOX period.

Similar to the previous study discussed, they measure earnings management using both income-increasing abnormal accruals and real earnings management. They find evidence that fewer companies are just meeting or beating analyst earnings forecasts in the post-SOX period using accruals-based earnings management. They do, however, find greater use of real earnings management to just meet or beat forecasts in the post-SOX period. Therefore, SOX appears to have successfully reduced earnings management using accruals-based methods. To some degree, that behavior has been replaced with a different form of earnings management, using real business decisions.

Carcello, Hollingsworth, and Mastrolia

One of the key provisions of SOX was the creation of the PCAOB and the requirement that large audit firms be inspected annually by the regulator. J. V. Carcello, C. W. Hollingsworth, and S. Mastrolia ("The Effect of PCAOB Inspections on Big 4 Audit Quality," working paper) ask whether the large audit firm inspections by the PCAOB have resulted in higher quality financial reporting. They compare abnormal accruals reported by audit clients before and after a Big Four firm's initial inspection by the PCAOB. If the inspections result in improved auditing, they expect to see less earnings management after the initial inspection. For comparison purposes, they make the same observations before and after AICPA peer review inspections made prior to SOX.

The authors find a significant decrease in income-increasing abnormal accruals in the first and second years following the initial PCAOB inspection. They find no similar decrease after AICPA peer review inspections, and conclude that the PCAOB inspections have a significant positive effect on audit quality—and thus, financial reporting—unlike AICPA inspections.

Chambers and Payne

A recent paper by Dennis J. Chambers and Jeff L. Payne ("Audit Quality and Accrual Reliability: Evidence from the Pre- and Post-Sarbanes-Oxley Periods," working paper) differs from the other four papers discussed above by measuring accrual reliability instead of abnormal accruals. SOX specifically mentions the intent of Congress to increase the reliability of financial reporting. Therefore, Chambers and Payne measure the reliability of accruals before and after SOX, where "reliability" is defined as the degree to which current accruals are repeated, or persist, in earnings in the following year. They examine companies audited by Big Four (or Six) and non-Big Four firms and develop a measure of audit firm independence. This measure considers auditors that derive a significant portion of their audit revenues from a particular industry to have reduced levels of independence due to the economic significance of the clients in that industry. They partition their sample into clients of audit firms with relatively more independence and those with potentially impaired independence.

Chambers and Payne find that the reliability of reported accruals is significantly higher in the post-SOX period compared to the pre-SOX years. This finding is true for companies of all sizes (i.e., both Big Four [or Six] and smaller firms). They also find that the companies with the greatest improvement in accrual reliability post-SOX are the clients of smaller audit firms that had relatively lower levels of independence before SOX. This result implies that the provisions of SOX intended to improve audit firm independence are affecting financial reporting decisions and potentially narrowing the quality difference between large and small auditors.

Implications

All five of the studies provide evidence that the financial reporting environment has significantly improved since SOX. There is evidence of less accruals-based earnings management and of greater accrual reliability. The stated goal of SOX was to improve the quality of reported financial numbers. While it is difficult to quantify the improvement, the evidence in these studies is consistent with the idea that SOX significantly improved the quality of financial reporting.

There are two important caveats, however. First, two of the studies found evidence that companies are, to some degree, shifting their earnings management techniques from managing accruals to real earnings management methods, such as reducing discretionary spending on R&D and advertising. Thus, there is evidence that real earnings management actually has increased in the post-SOX period, partially offsetting the reduction in accruals-based earnings management.

Second, any observed improvement in financial reporting may not be solely the result of SOX. During the same period, public expectations of corporate executives increased markedly, media attention on financial reporting was nearly unprecedented, and criminal prosecutions of fraudsters also may have led to better reporting, even in the absence of SOX. Thus, several factors—including the passage of SOX—may account for the overall improvement in reporting quality.

Researchers continue to examine the direct and indirect costs of SOX, which are considerable, and have begun to document the apparent benefit of SOX, namely an increase of the quality of financial reporting. The research is not yet at the point where an overall cost/benefit comparison can be made. Based on the body of research evidence to date, however, the quality of financial reporting does appear to be higher in the post-SOX period. ❑

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