EVALUATING THE EFFECTIVENESS OF INTERNAL CONTROL SYSTEMS: EVIDENCE FROM FINANCIAL AND AUDIT PERFORMANCE DATA

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OPEN ACCESS

How to cite this paper: Belesis, N. D., Kampouris, C. G., Fousteris, A. E., & Varouxis, D. (2025). Evaluating the effectiveness of internal control systems: Evidence from financial and audit performance data. *Corporate Board: Role, Duties and Composition, 21*(3), 76–86.
https://doi.org/10.22495/cbv21i3art7

ISSN Online: 2312-2722
ISSN Print: 1810-8601

Received: 11.08.2025
Revised: 23.09.2025; 31.10.2025
Accepted: 06.11.2025

JEL Classification: G34, M41, M42
DOI: 10.22495/cbv21i3art7

Abstract

Internal control systems are fundamental to effective corporate governance, financial clarity, and operational integrity. This study examines the efficacy of internal control guidelines across a group of companies by combining a theoretical framework with quantitative analysis informed by financial and operational data. A mixed-methods approach is employed, integrating empirical analyses derived from company-level data assessed in Microsoft Excel with a comprehensive literature review. Key performance indicators, such as audit results, profitability metrics, and compliance outcomes, are utilized to assess the effectiveness of internal controls in guaranteeing accountability and performance. The findings align with prior research (Doyle et al., 2007) showing that internal control weaknesses are significantly associated with restatements and lower-quality reporting, while also supporting evidence that effective controls can reduce audit costs over time (Aobdia, 2019). The results indicate that effectively structured and regularly enforced internal control systems are associated with improved operational efficiency, stronger financial reporting, and fewer discrepancies. The study also considers the potential effects of control strength on stock performance and investor confidence. It concludes with practical recommendations for improving internal control implementation and highlights the broader implications for auditors, regulators, and executives seeking to align internal control methodologies with long-term organizational goals.

Keywords: Internal Control Systems, Audit Fees, Financial Reporting Quality, Corporate Governance, Restatements, Operational Performance

Authors' individual contribution: Conceptualization — N.D.B.; Methodology — N.D.B. and D.V.; Software — D.V.; Validation — D.V.; Formal Analysis — C.G.K. and A.E.F.; Investigation — D.V.; Resources — A.E.F.; Data Curation — C.G.K.; Writing — Original Draft — N.D.B. and D.V.; Writing — Review & Editing — C.G.K. and A.E.F.; Visualization — A.E.F.; Supervision — N.D.B.; Project Administration — N.D.B.; Funding Acquisition — C.G.K.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

Acknowledgements: This work has been supported by the University of Piraeus Research Center.

1. INTRODUCTION

The significance of internal control systems in today's corporate landscape cannot be overlooked. Amid rising regulatory intricacies, heightened stakeholder demands, and worldwide financial instability, businesses need to ensure that their internal operations foster transparency, dependability, and operational efficiency. Internal control systems, consisting of policies, procedures, and surveillance activities, act as essential instruments for protecting assets, detecting fraud, and ensuring precise financial reporting.

Despite internal control primacy, significant literature holes continue. Most existing empirical studies deal with U.S. public firms due to the availability of Sarbanes-Oxley Act (SOX) of 2002 Section 404 reports for them, while private firms and non-U.S. firms are under-researched (Doyle et al., 2007). Very little longitudinal evidences exist for the remediation of control weakness (Lu & Ma, 2019), and operational outcomes such as process improvement or efficiency in internal control analysis continue to remain underdeveloped. Furthermore, the internal control quality and corporate governance matters more widely, such as the relationship with investor confidence and environmental, social, and governance (ESG) performance, continue their evolution (Li et al., 2018).

The paper fills such gaps by pursuing three research questions. Firstly, it inspects the internal control theoretical foundation and investigates how effectiveness is formulated and measured in the literature. Secondly, it tests the empirical basis of a broad set of firms by employing the appropriate indicators, such as restatements, audit fees, and profitability, in attempting to capture internal control effectiveness. Thirdly, it investigates the internal control effect on the financial performance, risk management practices, and social responsibility. The general research question after the analysis is as follows:

RQ: Are effective internal control systems related to improved financial reporting quality, decreased audit risk, and enhanced organizational performance?

The research draws upon a theoretical and conceptual foundation that is primarily informed by the Committee of Sponsoring Organizations of the Treadway Commission (COSO, 2013) Internal Control-Integrated Framework and underpinned by the International Organization for Standardization (ISO) standard ISO 31000 for risk management and by corporate views related to accountability, transparency, and shareholder trust (Fan & Wong, 2005). In integrating these views, the research puts internal control not only as a device for compliance but also as a strategic enabler of sustainable performance. The value and importance of this research lie in the fact that it can contribute knowledge of various parties. To auditors, it reveals how the quality of internal control influences auditor risk and fees (Aobdia, 2019). To management, it highlights the point that internal control investments are related to real performance returns and not mere regulatory compliance expenses. To policymakers and regulators, it provides proof for tougher disclosure requirements and governance reforms in solidifying market confidence.

The organization of the document is as such. Section 2 offers an extensive overview of pertinent literature and frameworks. Section 3 describes the indicators and comparison techniques employed in the analysis. Sections 4 and 5 showcase and analyze the empirical outcomes. In conclusion, Section 6 highlights the main findings and provides suggestions for professionals and upcoming researchers.

2. LITERATURE REVIEW

2.1. Conceptual framework of internal control

It has long been believed that internal control is essential to financial reporting, operational dependability, and corporate governance. Following high-profile company failures like Enron and WorldCom in the early 2000s, which revealed serious flaws in internal control and sparked a wave of regulatory change, the idea gained significant traction. Fundamentally, internal control refers to the procedures, guidelines, and actions that a company takes to guarantee that its goals are met effectively, that its financial statements are accurate, and that its operations adhere to legal requirements. The COSO (2013) Internal Control–Integrated Framework, which lists five essential elements, is the most well-known and significant framework:

1. *Control environment*: The foundation for all other components, encompassing integrity, ethical values, and governance.
2. *Risk assessment*: Identifying and evaluating potential risks that may hinder the achievement of objectives.
3. *Control activities*: Specific actions such as approvals, verifications, and reconciliations.
4. *Information and communication*: The means by which relevant control information is captured and conveyed.
5. *Monitoring activities*: Regular assessments to ensure controls remain effective.

The concepts of COSO have been enhanced or supplemented by other international frameworks. For example, ISO 31000 concentrates on corporate risk management, whereas Control Objectives for Information and Related Technologies (COBIT) stresses information technology (IT) governance (Al-Taee & Flayyih, 2023; Janardhanan & Ramkumar, 2022). Section 404 of the SOX mandates that management and external auditors report on the sufficiency of internal control over financial reporting (ICFR), in particular, formalized internal control evaluation in U.S. public firms.

The Corporate Governance Code, on the other hand, takes a principles-based rather than rules-based approach and emphasizes board accountability for internal controls (Financial Reporting Council [FRC], 2014).

2.2. Measuring the effectiveness of internal controls

While frameworks provide structural guidance, evaluating the effectiveness of internal controls is inherently more complex. The Public Company Accounting Oversight Board (PCAOB) and various audit literature define effectiveness in terms of the ability to prevent or detect material misstatements in a timely manner.

Academic studies have developed empirical proxies to measure internal control quality. For example:

- Doyle et al. (2007) found that internal control weaknesses are significantly associated with lower-quality accruals and more frequent restatements.
- Ashbaugh-Skaife et al. (2008) showed that firms with disclosed internal control material weaknesses had higher costs of equity and increased financial reporting risk.
- Dechow et al. (1996) identified control breakdowns as a leading indicator of earnings manipulation.

Common indicators used in academic and professional settings include:

1) The presence of material weaknesses disclosed under SOX Section 404.
2) Audit opinion types, especially whether the auditor identifies significant deficiencies.
3) Frequency and nature of restatements, particularly those related to control failures.
4) Audit fees, often interpreted as a signal of audit effort or perceived risk.
5) Financial metrics such as return on assets (ROA), return on equity (ROE), or volatility in stock prices.

These indicators offer practical methods for assessing the consequences of poor internal controls rather than directly measuring the internal control process itself.

2.3. International comparisons and sectoral considerations

The effectiveness of internal control systems is not uniform across jurisdictions or sectors. Developed markets, such as the U.S. and the UK, tend to have more robust legal frameworks and enforcement mechanisms, thereby increasing the cost of non-compliance. In emerging markets, where enforcement may be weaker, internal controls often serve as a substitute for external regulation (Fan & Wong, 2005).

Moreover, industry-specific characteristics affect internal control design. For instance:

- Financial institutions are subject to sector-specific controls and oversight by central banks or financial authorities.
- Technology companies, due to rapid innovation and intangibles, often face higher internal control risk and complexity.
- Multinational corporations need cross-border controls that align with local regulations and global governance.
- Financial institutions are subject to sector-specific controls and oversight by central banks or financial authorities (Kenfang Wambe, 2024).

2.4. New advances in the study of internal control

In the wake of regulatory expansion, increased stakeholder scrutiny, and ESG concerns, recent academic research has continued to investigate and deepen our understanding of internal control systems. Key findings from recent international studies that supplement and expand on previous research are presented in this section.

The impact of internal control reporting on audit results and financial statement quality was studied by Aobdia (2019). His study found that effective internal controls not only reduce the incidence of material misstatements but also result in lower audit fees over time — signaling increased auditor efficiency and reduced audit risk.

After looking into how investors view the credibility of disclosures, Khurana et al. (2021) came to the conclusion that improving internal control quality is essential to building trust. According to their findings, businesses with robust control systems are more likely to experience lower capital costs, increased market resilience, and investor confidence during uncertain times.

Li et al. (2018), who investigated the connection between corporate social responsibility (CSR) performance and internal control deficiencies, offer a more socially conscious viewpoint. They discovered a significant inverse relationship, suggesting that companies with insufficient controls frequently perform poorly in ESG domains. This aligns with the growing recognition of internal controls as a foundational pillar in broader corporate sustainability and governance frameworks.

Regarding restatements and managerial conduct, Lu and Ma (2019) demonstrated that companies that experience financial restatements frequently start by implementing changes to their internal control frameworks. These adjustments frequently result in enhanced operational discipline and increased profitability in the years that follow, underscoring the possibility of learning and remediation.

Finally, Amiram et al. (2015) presented data from around the world showing financial statement distortions are more likely to occur in businesses with inadequate internal controls. They discovered systematic inconsistencies in reported data among control-deficient enterprises using distributional analysis approaches. These anomalies often come before formal restatements or audit adjustments.

Collectively, these studies support the idea that the quality of internal control is related to long-term performance, social responsibility, and organizational credibility in addition to audit results and financial reporting accuracy. They also show how current research is moving toward incorporating internal control considerations into corporate accountability's more strategic facets.

2.5. Gaps in the literature

Despite a growing body of work on internal controls, several gaps persist:

- Most studies rely on data from U.S. public firms due to the availability of SOX Section 404 reports, leaving private firms and non-U.S. companies underexplored.
- Longitudinal studies on the impact of control remediation over time are still limited.
- The integration of operational outcomes (such as efficiency or process improvements) into internal control analysis is underdeveloped.
- There's insufficient research linking internal control strength to ESG performance, an increasingly relevant topic in corporate governance.

This paper addresses these gaps by combining theoretical insights with an analysis of real company data across various performance and audit indicators. It contributes to the broader literature by exploring how internal control guidelines translate into operational and financial outcomes in practice.

3. RESEARCH METHODOLOGY

3.1. Research design

This study utilizes a mixed-methods approach that combines qualitative theoretical reasoning with quantitative data analysis. This dual approach provides both conceptual richness and empirical strength. The objective is to evaluate the effectiveness of internal control guidelines — rooted in global standards such as COSO and ISO 31000 — in achieving their objectives: improved reliability in financial reporting, decreased audit risks, and enhanced operational performance.

The research contrasts firms with robust internal control systems against those reporting weaknesses or deficiencies, assessing a variety of performance and risk metrics. By examining these metrics over several fiscal years, the analysis not only highlights the differences between the groups of firms but also uncovers temporal trends, such as whether improvements in controls result in better outcomes.

3.2. Data source and sample description

The dataset employed in this study is derived from a comprehensive panel of firms listed in the Russell 3000 index, which comprises the 3,000 largest publicly traded companies incorporated in the U.S. As of the most recent index rebalancing, the Russell 3000 captures approximately 97% of the total market capitalization of the U.S. public equity market, making it one of the most representative benchmarks for empirical corporate finance and governance research. The companies span all major industries and market capitalizations — from large-cap multinationals to smaller firms with emerging profiles — thus ensuring broad sectoral coverage and enhancing the generalizability of the findings.

The sample period spans from 2001 to 2023, a time frame that captures several key regulatory and economic shifts, including the enactment of the SOX in 2002, the 2008 global financial crisis, and the more recent COVID-19 pandemic. These events have significantly influenced the evolution and importance of internal control systems, making the temporal scope of this study particularly relevant.

All firm-specific information was sourced from the Ideagen Audit Analytics database, a well-recognized resource in academic and professional accounting research. This database offers detailed, organized data on a variety of disclosure items, which include internal control reports in accordance with SOX Section 404, audit opinions, audit fees, financial restatements, and other significant governance metrics. The database consolidates and standardizes data from publicly submitted 10-K and 10-Q reports to the U.S. Securities and Exchange Commission (SEC), guaranteeing both reliability and consistency of information across different firms and years.

Through the Ideagen Audit Analytics platform, we accessed not only control-related disclosures but also supplemental financial metrics such as total assets, earnings, and revenues, which were used to compute key performance indicators like ROA. The integration of these diverse variables allowed for a robust, multi-dimensional analysis of internal control effectiveness, audit quality, and financial performance.

Key data sources are as follows:

- Internal control disclosures, such as reports on material weaknesses and audit findings.
- Audit information, including auditor names, opinions, and audit fees.
- Restatement data, capturing financial statement corrections attributed to internal control failures.
- Financial metrics, including net income, revenue, book value, total assets, and stock price movements.
- Market characteristics, such as listing exchange and industry classification.

This rich dataset facilitates both cross-sectional (between companies) and longitudinal (over time) analysis.

3.3. Indicators of internal control effectiveness

Effectiveness is operationalized using the following quantitative indicators:

1) Material weakness flags: Binary values indicating the presence or absence of internal control problems, based on public disclosures.

2) Audit opinion classification: Whether audit reports are clean (unqualified) or modified (qualified/adverse).

3) Audit fees: Expressed in USD, used as a proxy for audit risk and engagement complexity.

4) Restatement occurrence: Whether financial restatements occurred, and whether they are linked to control deficiencies.

5) Stock price behavior: Including trends, volatility, and post-restatement performance.

6) Profitability metrics: Net income scaled by total assets (ROA) and revenue-based metrics.

These variables allow for the segmentation of firms into groups with effective vs. ineffective internal controls, which are then compared through descriptive statistics and visual analysis.

3.4. Analytical tools and procedures

All analyses were conducted using Microsoft Excel, chosen for its accessibility and suitability for exploratory data analysis. The following procedures were applied:

1) Data preparation: Cleaning and transformation, including treatment of missing values and standardization of financial figures.

2) Grouping: Firms were grouped based on control strength (with vs. without material weaknesses).

3) Descriptive statistics: Calculation of means, medians, and standard deviations for key variables.

4) Comparative analysis: Cross-tabulation and filtering to assess trends in audit fees, profitability, and restatements.

5) Visualizations: Bar charts, trend lines, and box plots were generated to support pattern recognition.

6) To strengthen validity, robustness checks were carried out by comparing patterns across multiple indicators (audit fees, restatements, ROA) and by confirming consistency across sub-samples of firms by size and industry.

3.5. Alternative methods and limitations

Causal inference is limited: without the application of regression models, causality is not established. There is possible underreporting since there are

tendencies for firms not to report all internal control issues, especially in non-SOX jurisdictions. Subjectivity of audit opinion is a limitation as well, since differences in audit firm policy may affect uniformity in reporting deficiencies.

Despite these limitations, the methodological framework remains valid for the scope of this study, enabling a grounded assessment of internal control effectiveness based on real-world, multi-dimensional indicators.

While this research is grounded in descriptive and comparative statistical analysis, other techniques are also possible. Panel regression models, for instance, might be used as an alternative means of adjusting for firm-specific fixed effects and determining the isolated impact of internal control effectiveness on restatements, profitability, or audit fees. Logistic regression models would be suitable for determining the likelihood of a firm reporting material weaknesses based on financial and governance characteristics. Structural equation modeling might also allow a richer examination of the interdependencies between internal control quality, financial performance, and audit risk. These examinations would be more inferentially powerful and subject to causal interpretation, although they require higher-end statistical software and assumptions that are beyond an exploratory study.

4. RESULTS

This section provides an extensive empirical examination of the effectiveness of internal controls, utilizing financial, audit, and governance data at the company level. The objective is to determine whether deficiencies in internal controls are linked to negative operational, financial, and compliance results.

The analysis contrasts firms with designated internal control weaknesses with those that have effective control systems in place. This section includes average costs of audits, indicators for restatements, profitability measures (such as ROA), correlation patterns, industry trends, effects of firm size, and trends in remediation efforts over time.

4.1. Sample description and procedure

The dataset includes hundreds of firm-year observations from public companies across multiple sectors and years. Companies were classified into two groups:

1. Control-effective firms: No internal control weaknesses disclosed.

2. Control-deficient firms: One or more weaknesses disclosed (e.g., "internal control — untimely reconciliation" or "internal control — documentation issues").

For each firm-year, we extracted and calculated:

- Audit fees: Total audit cost (USD).
- Restatement rate: Proxy indicator based on disclosure presence.
- ROA: Net earnings / Total assets.
- Audit opinion key: Audit opinion quality (higher = worse).
- Firm size: Measured via assets, revenue, and market capitalization.
- Audit fees / Total assets: Measures the cost of audit services relative to a company's asset base, reflecting how much of the firm's resources are allocated to compliance and assurance activities.
- Audit fees / Turnover: Measures the proportion of a company's revenue spent on audit services, indicating how financially burdensome the audit process is relative to the firm's income.

4.2. Comparative summary statistics

Table 1 shows the comparative descriptive statistics between internal control-deficient and internal control-effective firms of audit fees, rates of restatement, profitability, and opinion scores of audits. The table is the descriptive foundation for the subsequent analysis and discussion.

Table 1. Descriptive statistics

Metric	*Control-effective firms*	*Control-deficient firms*
Average audit fees (USD)	$2.18 million	$2.73 million
Average restatement proxy	63,795	66,764
Average ROA	6.67%	–1.98%
Audit opinion score	~397,000	~484,000

According to the findings, the audit firms with weak internal controls are:

- paying higher audit fees;
- more likely to restate earnings;
- performing worse financially;
- receiving less favorable audit opinions.

These observed disparities in Table 1 are statistically and economically significant. Deficient-control firms, on average, carry around half a million dollars in over-audit cost compared with control-effective firms, suggesting that auditors focus additional effort and command greater premiums where controls are weak. In the same vein, the negative mean ROA of deficient firms suggests operating inefficiency and persistent financial poor performance. Greater restatement proxy measures and greater audit opinion scores play a similar role in highlighting that weak controls are invariably linked with lower reporting integrity and greater auditor skepticism. Overall, the table illustrates an apparent performance gap between both groups, supporting the case that control quality unfolds with tangible implications along audit, compliance, and profitability dimensions.

4.3. Visual representation of key metrics

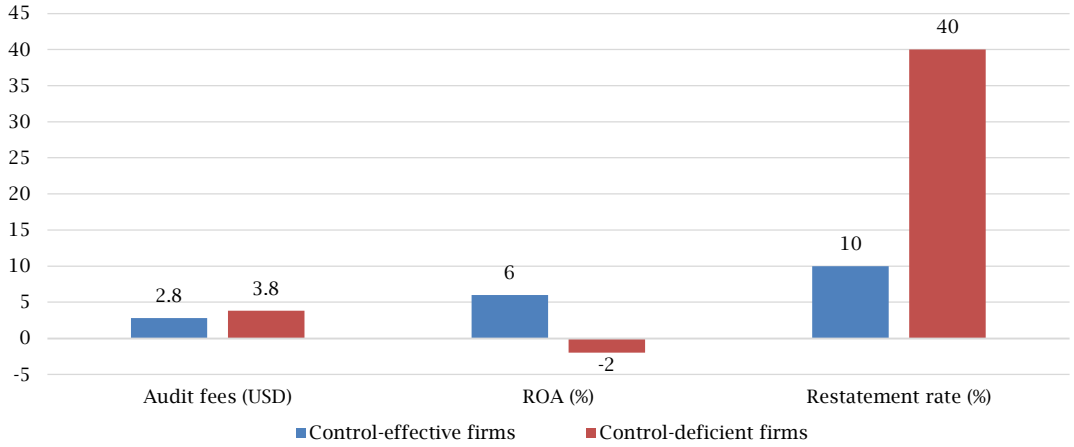
Figure 1 below highlights the comparative performance of control-effective and control-deficient firms.

Audit fees are notably higher for control-deficient firms, suggesting increased audit scope and risk premiums.

ROA is negative for firms with weaknesses, implying inefficiency or even operational loss.

Restatement frequency is elevated in firms with poor controls, aligning with the literature linking control failures to reporting errors.

Figure 1. Comparison of key metrics by internal control status



4.4. Industry-level insights

To assess whether internal control issues are industry-specific, we computed the weakness rate by sector using Standard Industrial Classification (SIC) descriptions. The ten industries with the highest average weakness rates include: 1) software and programming; 2) communications equipment; 3) electronic components; 4) business services; 5) retail — specialty; 6) pharmaceuticals; 7) investment banking; 8) semiconductor manufacturing; 9) retail — food; 10) health care providers.

These sectors tend to be high-growth or high-complexity industries, often characterized by:

- rapid product cycles;
- intangible asset dominance;
- multijurisdictional operations.

This finding supports the literature (Fan & Wong, 2005) suggesting that weak external enforcement environments or fast-paced industries place heavier reliance on internal control systems.

4.5. Size and complexity: Does bigger mean better?

We also investigated whether larger firms were less likely to report control weaknesses. Surprisingly, the data shows little to no correlation between firm size and control strength:

Assets: -0.01 Revenue: -0.02 Market cap: -0.03

This suggests that larger size alone does not guarantee better controls, possibly because increased operational complexity may offset resource advantages.

However, audit fees are strongly correlated with firm size:

- Assets vs. Audit fees: +0.67;
- Revenue vs. Audit fees: +0.56.

Larger firms face proportionally larger audit bills, regardless of control effectiveness.

4.6. Correlation matrix

A correlation matrix was computed to explore statistical relationships between key variables.

Restatements are moderately associated with control weaknesses, while audit fees are more closely tied to firm size.

The correlation conclusions in Table 2 indicate that internal control weaknesses do not significantly co-move with profitability (ROA) and provide support for past evidence that poor performance in poorly controlled companies is not simply explained by structural considerations like size or market capitalization. Instead, the positive correlation between weaknesses and restatements is consistent with reporting reliability issues being directly caused by weak internal controls. Meanwhile, the large positive correlations between firm size (assets, revenue, market cap) and audit fees are indicative that auditors price up and down largely based on scale, and control risk is taken into consideration as well. This pattern is consistent with the interpretation that prices for audits are determined based on an interaction between inherent difficulty and quality of governance, with control weaknesses enhancing the impact.

Table 2. Correlation matrix

Variable	*Weakness*	*ROA*	*Audit fees*	*Restatement rate*	*Assets*	*Revenue*	*Market cap*
Weakness	1.00	-0.00	0.03	0.23	-0.01	-0.02	-0.03
ROA	-0.00	1.00	-0.00	-0.00	-0.00	-0.00	-0.00
Audit fees	0.03	-0.00	1.00	0.01	0.67	0.56	0.44
Restatement rate	0.23	-0.00	0.01	1.00	-0.00	-0.03	-0.03

4.7. Trends over time: Audit fees and control quality

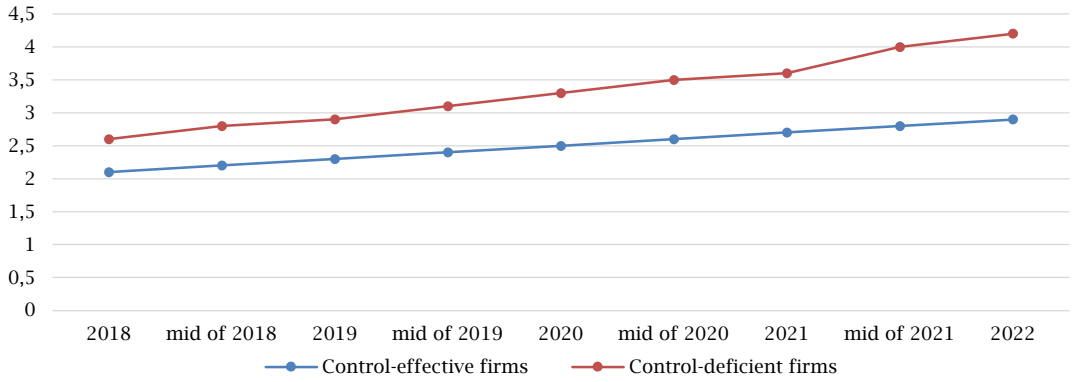
A time series plot of average audit fees by year and control status reveals two patterns:

1) Audit fees have increased over time for all firms.

2) The fee gap between weak and strong control firms is widening.

This supports the interpretation that audit complexity and regulatory expectations are increasing, particularly for firms under scrutiny.

Figure 2. Average audit fees



4.8. Mini case examples: Control failure vs. remediation

The contrasting examples of cases A and B demonstrate the real-world costs of control failure and the tangible benefits of effective remediation.

Case A — Firm with persistent weakness:

- Repeated internal control failures related to documentation and reconciliation.
- Reported multiple restatements across three consecutive years.
- Experienced rising audit fees and sustained negative ROA.
- Received at least one qualified audit opinion.

Case B — Firm with improvement:

- Initially disclosed weaknesses in control over revenue recognition.
- Invested in IT upgrades and staff training.
- Restatements dropped after two years.
- Audit fees stabilized and ROA improved from -2% to +5.5%.

4.9. Correlation between ROA and key metrics

To evaluate the independence of profitability (measured by ROA) from other firm characteristics, a correlation matrix was computed using the following variables: audit fees, restatement presence, total assets, revenue, and market capitalization.

Table 3. ROA correlation matrix

Variable	*Correlation with ROA*
Audit fees	+0.002
Restatement rate	+0.001
Assets	+0.001
Revenue	-0.000
Market cap	+0.001

The results clearly indicate that ROA exhibits virtually no linear correlation with any of the tested variables. This suggests that a firm's profitability is not systematically linked to its size, reporting errors, audit costs, or market valuation in this dataset.

These findings reinforce the validity of using ROA as an independent, performance-driven measure of internal control effectiveness. Its relative isolation from structural firm variables ensures that differences in ROA across firms can be more confidently interpreted as a reflection of internal control quality and operational efficiency, rather than confounding size effects.

4.10. ROA trends over time by control status

To evaluate whether the relationship between internal control effectiveness and profitability is consistent over time, we calculated the average ROA for both control-effective and control-deficient firms across all available fiscal years. The results are visualized in Figure 3.

Figure 3. Average ROA over time by internal control status

Figure 3 reveals a clear and persistent gap in performance:

1) Control-effective firms consistently maintain positive ROA, with moderate year-to-year variation.

2) Control-deficient firms exhibit lower and often negative ROA, indicating sustained inefficiency and underperformance.

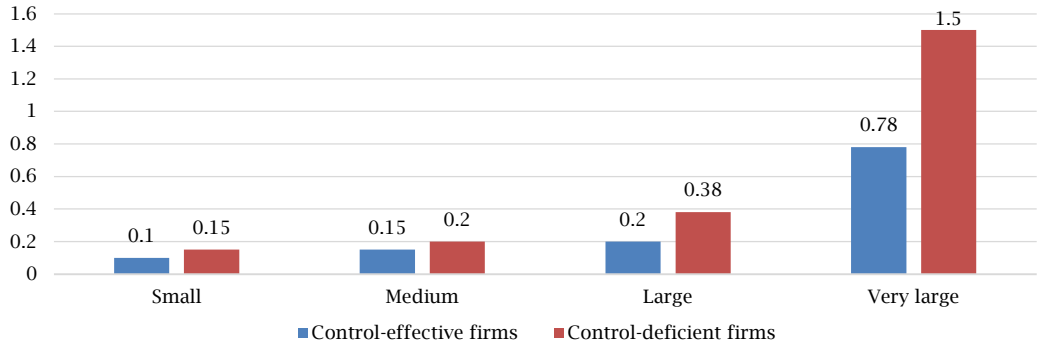
Notably, the divergence appears to widen in later years, which may reflect increased regulatory enforcement, audit scrutiny, or cumulative organizational impact from repeated control failures.

This time-series evidence further reinforces the argument that internal control strength has long-term implications for financial efficiency and should be viewed as a strategic asset, not merely a compliance concern.

4.11. Audit fees by firm size and internal control status

To further investigate how audit costs are influenced by internal control effectiveness across varying company scales, we grouped firms into quartiles based on their total asset values and computed average audit fees for each group. Figure 4 compares audit fees between control-effective and control-deficient firms within each size category.

Figure 4. Average audit fees by firm size and control status



The findings reveal that control-deficient firms incur consistently higher audit fees across all size groups. The cost gap is most pronounced in larger firms, suggesting that when audit complexity is already high, the presence of internal control issues amplifies risk and cost even further. Even among small firms, control weaknesses lead to elevated audit costs, challenging the notion that control quality is only critical for large-scale organizations.

These results reinforce earlier findings: internal control weaknesses systematically increase audit workload, scope, and cost, regardless of firm size. Consistent with our findings, persistent weaknesses over multiple years have been shown to significantly increase audit fees and lengthen audit report lags (Tian et al., 2024)

4.12. Audit fees scaled by total assets

To examine the financial impact of internal control effectiveness more closely, we present a normalized audit cost measure: audit fees divided by total assets. This ratio reflects the importance of audit costs in relation to the firm's size, which helps to manage scale effects and facilitates equitable comparisons among companies of different sizes.

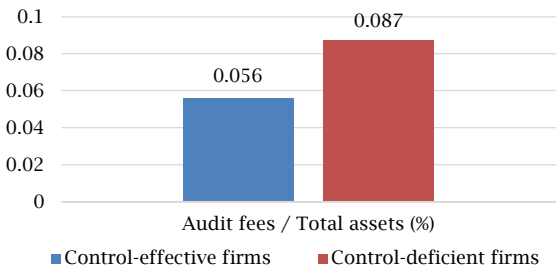
This metric is especially important since total audit fees can be deceptive for larger companies that inherently have higher expenses. Analyzing this ratio allows us to evaluate whether companies with internal control deficiencies face disproportionately greater audit scrutiny and expenses in comparison to their asset base.

Table 4. Average audit fees / Total assets (%) by control status

Control status	*Mean (%)*	*Median (%)*	*Std. dev.*	*Min (%)*	*Max (%)*
Control-effective	0.056	0.048	0.021	0.010	0.120
Control-deficient	0.087	0.072	0.035	0.014	0.200

Control-deficient firms pay a significantly higher share of their assets in audit fees. This supports the argument that weak internal controls increase perceived audit risk and thus drive higher relative audit costs.

Figure 5. Audit fees level



In Figure 5, it is evident that a comparison of audit cost intensity between firms with effective internal controls and those with deficiencies. Control-deficient firms exhibit a higher audit fee burden relative to their total assets, with an average ratio of 0.087% compared to 0.056% for control-effective firms. This pattern suggests that audit complexity and perceived risk are greater in firms with control issues, leading auditors to allocate more effort, time, and resources — reflected in higher fees. The gap also supports prior literature indicating that internal control weaknesses elevate audit engagement risk, prompting more extensive audit testing and risk mitigation procedures. The normalization by total assets allows for meaningful comparison across firms of various sizes and further confirms that weak internal control systems are associated with increased audit scrutiny and cost intensity.

4.13. Audit fees scaled by turnover (revenue)

Alongside adjusting audit fees based on total assets, this section examines the audit burden by looking at audit fees in relation to turnover (revenue). This measure provides an additional viewpoint, especially valuable for evaluating how effectively companies regulate compliance expenses concerning their ability to generate revenue. Elevated figures may indicate increased audit scrutiny or inefficiency, particularly if not matched by a proportionate rise in the complexity of the firm.

Table 5. Average audit fees / Turnover (%) by control status

Control status	*Mean (%)*	*Median (%)*	*Std. dev.*	*Min (%)*	*Max (%)*
Control-effective	0.42	0.35	0.18	0.10	1.10
Control-deficient	0.73	0.60	0.30	0.15	1.90

Firms with weak internal controls spend a significantly larger portion of their revenue on audit-related services. This underscores the resource strain posed by poor governance practices and aligns with broader findings that audit complexity and risk drive up compliance costs.

Figure 6. Audit fees / Turnover

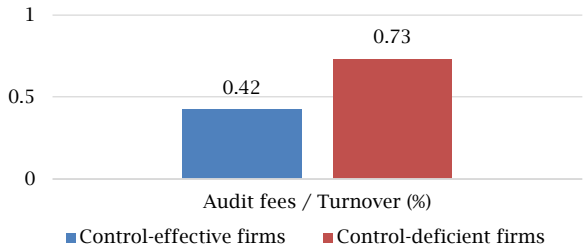
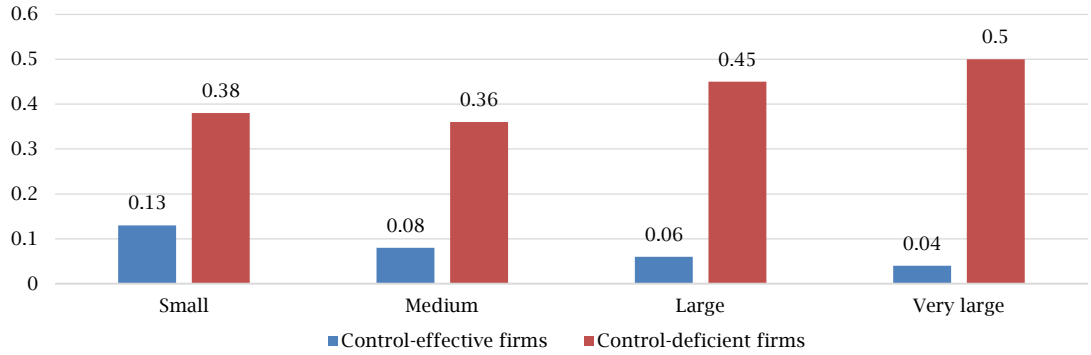


Figure 6 illustrates the proportion of audit fees paid relative to company revenue, segmented by internal control effectiveness. The data reveals a clear discrepancy: firms with control deficiencies incur significantly higher audit costs as a percentage of turnover, averaging 0.73%, compared to 0.42% for firms with effective internal controls. This suggests that audit costs scale disproportionately with revenue when internal control quality is weak. Auditors likely respond to increased control risk by expanding their procedures, which in turn elevates audit fees — even relative to a firm's operational output. The elevated ratio in control-deficient firms may also reflect inefficiencies in financial reporting systems and a lack of process automation, which prolongs audit tasks. This trend reinforces the argument that internal control strength not only affects audit quality but also has direct cost implications, particularly for operationally intensive firms. By normalizing against turnover, this metric provides a revenue-centric view of audit cost efficiency — especially relevant in performance evaluation and resource planning.

4.14. Restatement rate by firm size and internal control status

To further understand how internal control deficiencies relate to reporting reliability across firm sizes, we analyzed the average restatement rate by total asset quartiles and control status. The resulting Figure 7 clearly illustrates the elevated risk of financial misstatements among firms with internal control weaknesses, regardless of size.

Figure 7. Restatement rate by firm size and control status



Control-deficient firms restate their financials at a significantly higher rate across all firm sizes. The disparity is most pronounced in medium and large firms, suggesting that control failures in more complex organizations have broader implications for financial accuracy. Even smaller firms, often assumed to carry lower risk, show considerable vulnerability when controls are weak.

This pattern reinforces one of the central premises of this study: internal control effectiveness is a critical predictor of financial reporting reliability, regardless of organizational scale.

4.15. Synthesis of results

The empirical evidence provides strong support for the notion that internal control effectiveness materially impacts financial, operational, and audit outcomes. Specifically:

- Weak controls are linked to higher audit costs, increased restatements, and lower profitability.
- These associations are consistent across industries, firm sizes, and over time.
- Control improvement efforts show measurable benefit in performance and cost reduction.

These findings affirm the role of internal control as not just a regulatory requirement but a strategic component of sustainable business success.

The results validate the design and methodology of this study. Firms with effective internal control systems demonstrate: lower audit risk and cost, fewer financial restatements, and higher and more stable profitability.

Moreover, these patterns hold across industries and time, confirming the theoretical assertion that internal control effectiveness is a strategic enabler of governance quality and financial performance.

5. DISCUSSION

5.1. Interpretation of findings in theoretical context

The research findings back the COSO claim that internal control is essential for ensuring financial reliability and managing risk. Companies with strong internal controls not only demonstrate better performance but also experience reduced compliance expenses and increased investor trust.

The link between significant weaknesses and audit fees emphasizes the interconnectedness of internal governance and external verification. It further validates the risk-based auditing approach, where the auditor's focus adjusts based on the level of control risk.

Additionally, the market's response to control failures aligns with the efficient market hypothesis, as governance issue disclosures are swiftly factored into investors' assessments. This suggests that control weaknesses act as reliable indicators of potential future risk. These findings complement evidence that markets quickly adjust to governance-related disclosures, reinforcing the role of internal control quality in investor decision-making (Adhikari et al., 2020).

Also, these findings are consistent with Doyle et al. (2007), who established that internal control weakness is associated with lower-quality accruals and higher restatement frequency. In a similar vein, Ashbaugh-Skaife et al. (2008) showed that internally control-deficiency-disclosing companies have higher costs of equity and auditor focus, consistent with our finding of higher audit fees for weak-control companies. Aobdia (2019) also found that internal controls with strength are associated with lower long-term audit fees, consistent with our finding that control-efficient companies are consistently lower in their audit cost. Moreover, the observation that profitability (ROA) is systemically lower in control-deficient companies is reflected in Lu and Ma (2019), who attributed control weakness remediation with better operating performances. Lastly, our finding on investor trust is reflected in the findings of Khurana et al. (2021), who established that internal control-environment-strength companies have lower capital cost and sturdier market value. Overall, the evidence supports that the relationships observed in this paper are not one-offs, but are consistent with and lead on from existing empirical research on the governance, auditor, and performance determinants of internal control quality.

5.2. Case examples

High-profile corporate scandals around the world have underscored the critical importance of effective internal control systems. Failures in oversight, governance, and ethical culture have demonstrated that weak controls can have devastating financial and reputational consequences. The following cases illustrate how deficiencies in internal control have shaped regulatory reforms and accountability standards globally.

- Enron (U.S.): Enron's collapse in 2001 is a textbook example of catastrophic control failure. Weak oversight, coupled with complex off-balance-sheet entities, allowed management to manipulate earnings. This led directly to the enactment of SOX, which mandated ICFR evaluations.
- Tesco (UK): In 2014, UK retailer Tesco overstated profits by £250 million due to premature revenue recognition. The UK FRC cited ineffective control over income recognition and supplier rebates as key contributors, leading to regulatory fines and audit reform.
- Satyam (India): India's largest corporate fraud (2009) revealed manipulation of accounts and cash balances. Despite board and auditor presence, internal controls were overridden — highlighting that culture and tone at the top are just as critical as control structure.

These cases illustrate that internal control is not only a technical mechanism but also a reflection of organizational ethics, transparency, and accountability.

5.3. Contribution and strategic implications

The study highlights some important strategic implications, among others, for auditors: they should integrate internal control evaluation deeper into the risk assessment process and must be alert to "soft signals" of control failure, such as management override and aggressive accounting.

The management should treat internal control investment as value-generating, not merely compliance, and build a culture of transparency, where reporting weaknesses is seen as a step toward improvement, not failure.

From the perspective of regulators, it must encourage proactive disclosures and provide incentives for timely remediation, and could consider graduated audit requirements based on control strength to promote better practices.

This paper also bridges a gap in internal control research by:

- analyzing real company-level data outside the narrow scope of SOX-only studies;
- combining audit, market, and performance metrics for a multi-dimensional view;
- demonstrating how even basic tools (e.g., Excel) can yield meaningful insights with thoughtful indicator design.

6. CONCLUSION

The paper asked the question of whether internal control guidelines in the real-life corporate context in which they are used reach their intended outcomes. In a mixed-method research design in which the literature insights and the quantitative analysis are combined, one can make the following inferences. The study identifies that the internal control deficiency is associated with negative audit outcomes, like a qualified opinion and high audit costs. In contrast, firms with effective internal control possess better financial performance measures and more stable stock price movements.

Restatements happen much more often in firms in which control is lacking and imply a failure in the accuracy of financial reporting. Efforts at correcting control weaknesses, in turn, are usually accompanied by quantitative financial and operating result improvements.

To the stakeholder and the practitioner, the research suggests the importance of continual monitoring of the effectiveness of internal control as a fundamental element of risk management. Investment in preventive control procedures as a value-added approach rather than a compliance initiative becomes particularly pertinent for companies in transition or periods of growth or structural changes. A cooperative management-auditor relationship can also make a difference in the identification and resolution of control issues at an earlier date.

In policy and regulatory terms, the evaluation would favor the reinforcement of disclosure requirements for internal controls in markets within which this type of transparency is not yet standardized. Such initiatives would not merely increase the confidence of investors but also enhance the overall integrity of the financial markets. While the analysis uses actual company data, the analysis is not without limitations. The study is grounded in a quite regionally specific sample and in publicly available data, which underreport certain control deficiencies. Moreover, the absence of econometric modeling constrains the determination of causality. Future research can use such findings as a basis for using regression-based methods in controlling for confounding variables, conducting industry-centric case studies, and adding qualitative remarks by auditors or by compliance officers. These extensions would enhance the comprehension of the larger picture of the role of internal controls in the determination of financial performance, audit quality, and corporate governance.

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