

DETECTING FINANCIAL STATEMENT FRAUD THROUGH THE FRAUD HEXAGON MODEL: A LITERATURE REVIEW OF ITS APPLICATION AND MODERATING ROLE OF AUDIT COMMITTEES

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ABSTRACT

Financial statement fraud, while statistically less frequent than other types of occupational fraud, causes the highest financial losses. This literature review synthesizes theoretical and empirical findings on the Fraud Hexagon model, which extends traditional fraud theories by incorporating six key elements: pressure, opportunity, rationalization, capability, arrogance, and collusion. The review also explores the moderating role of audit committees in mitigating these fraud risk factors, particularly in the context of state-owned enterprises. Findings reveal varied empirical support for each element and indicate that audit committees can moderate some, but not all fraud mechanisms. Research gaps are identified to guide future studies on fraud detection and governance effectiveness.

Keywords: financial statement fraud, fraud triangle, fraud hexagon, audit committee, Agency Theory

INTRODUCTION

In recent decades, financial statement fraud has emerged as one of the most severe threats to organizational integrity and stakeholder trust. Although it constitutes a smaller portion of occupational fraud cases, it causes the highest financial damage, with losses reaching up to hundreds of thousands of dollars per incident (ACFE, 2024). Particularly in state-owned enterprises (SOEs), financial fraud not only undermines corporate credibility but also erodes public trust and causes significant harm to national economic resilience.

The urgency of detecting financial fraud has led to the development of various theoretical frameworks. Initially, the Fraud Triangle model by Cressey (1953) offered a foundational perspective, highlighting pressure, opportunity, and rationalization as key drivers. Over time, this model evolved into the Fraud Diamond (Wolfe & Hermanson, 2004), the Fraud Pentagon, and more recently the Fraud Hexagon introduced by Voutsinas (2019), which incorporates capability, arrogance, and collusion to provide a more holistic understanding of fraud perpetration.

However, applying the Fraud Hexagon model in empirical research has yielded mixed results. While some studies confirm the relevance of certain elements such as *pressure* and collusion (e.g., Bader et al., 2024; Sukmadilaga et al., 2022), others report non-significant or even contradictory outcomes for the same variables (e.g., Alfaro et al., 2023). These inconsistencies raise critical questions about the universality and applicability of the model across different sectors and governance structures.

A recurring theme in the literature is the role of corporate governance, especially audit committees, in moderating the relationship between fraud risk factors and actual fraudulent behavior. Effective audit committees are expected to act as a safeguard mechanism, ensuring robust oversight and enhancing financial reporting quality (Ghafran et al., 2022; Kamila & Parinduri, 2023). Yet, empirical findings remain inconclusive about the extent to which audit committees can truly neutralize fraud risks across the six Fraud Hexagon elements.

This literature review aims to systematically explore and synthesize current empirical findings on the use of the Fraud Hexagon framework in detecting financial statement fraud, particularly in the context of SOEs. It also critically examines the moderating role of audit committees, offering insights into both theoretical advancements and practical implications. Through this review, we seek to highlight research gaps, clarify contradictory findings, and provide a foundation for future investigations in fraud detection and prevention.

LITERATURE REVIEW

Agency Theory

Agency theory provides the foundational lens through which financial statement fraud can be understood. It explains the principal-agent relationship, where company owners (principals) delegate decision-making authority to managers (agents) in the expectation that the agents will act in the best interests of the principals (Jensen & Meckling, 1976). However, conflicting interests and asymmetric information often lead to opportunistic behavior, where managers may prioritize personal gain over organizational welfare.

One manifestation of this misalignment is financial statement manipulation, which allows agents to present a more favorable picture of company performance to secure bonuses, promotions, or external

financing. Agency theory also introduces the concept of *agency costs*—expenses incurred to monitor agent behavior, align interests, or mitigate the effects of opportunistic actions. Fraudulent reporting becomes a strategic tool for agents when monitoring mechanisms are weak or incentives are misaligned.

Typologies of Occupational Fraud

According to the Association of Certified Fraud Examiners (ACFE, 2024), occupational fraud can be categorized into three major types, the first one is corruption – the misuse of influence in business transactions for personal benefit. Followed by the second one is asset misappropriation, which is theft or misuse of organizational assets. The last one is financial statement fraud – intentional manipulation or misrepresentation of financial information to deceive stakeholders. While financial statement fraud is the least common, it is the costliest with damages far exceeding those caused by corruption or asset misappropriation.

From Fraud Triangle to Fraud Hexagon

The evolution of fraud theories has been driven by the need to comprehensively capture the motives and conditions that foster fraudulent behavior. Fraud Triangle (Cressey, 1953): Consists of three elements—pressure, opportunity, and rationalization—that together explain why individuals commit fraud. Fraud Diamond (Wolfe & Hermanson, 2004): Adds capability as a fourth element, recognizing that not everyone under pressure and opportunity can commit fraud without the necessary skills or authority. Fraud Pentagon: Introduces arrogance (or ego) as an additional psychological trait influencing fraud. Fraud Hexagon (Vousinas, 2019): Expands the model to include collusion, acknowledging that fraud often involves cooperation among multiple actors. This six-dimensional model—pressure, opportunity, rationalization, capability, arrogance, and collusion—offers a more nuanced approach to detecting and preventing financial fraud, especially in complex organizational structures.

Audit Committee as a Governance Mechanism

The audit committee plays a pivotal role in corporate governance by monitoring financial reporting, internal controls, and compliance with regulatory standards. According to the Indonesian Financial Services Authority (OJK Regulation No. 55/POJK.04/2015), the audit committee is responsible for assisting the board of commissioners in overseeing the accuracy and integrity of financial statements.

A competent and independent audit committee can detect anomalies, question management assumptions, and prevent fraudulent reporting. Prior studies suggest that an effective audit committee can mitigate the effects of fraud risk factors (Hasnan et al., 2021; Ghafran et al., 2022), making it a potential moderating variable in the fraud detection model.

RESULT AND DISCUSSION

Components Of the Fraud Hexagon: Literature Analysis

The Fraud Hexagon, as introduced by Vousinas (2019), provides a comprehensive model for understanding the motivations and mechanisms behind financial statement fraud. This section reviews empirical studies related to each of the six components—pressure, opportunity, rationalization, capability, arrogance, and collusion—to assess their relevance and consistency across different research settings, particularly in Indonesian and emerging market contexts.

Pressure (External Pressure)

Pressure refers to the internal or external forces that push individuals to commit fraud, such as financial instability, performance expectations, or debt obligations. External pressure is commonly proxied by leverage ratio. Supporting Evidence: Studies by Triyanto et al. (2023), Sidik (2019), and Zaki (2017) found a significant positive relationship between external pressure and the likelihood of financial statement fraud. This suggests that companies under financial strain may manipulate earnings to maintain stakeholder confidence. Contradictory Findings: In contrast, Biduri et al. (2023) and Bader et al. (2024) reported that external pressure does not significantly influence fraudulent behavior, implying that other mechanisms may buffer such effects. These mixed results indicate the need for a deeper understanding of contextual factors, such as governance structure and regulatory enforcement.

Opportunity (Ineffective Monitoring)

Opportunity arises when internal controls are weak, governance is lax, or oversight mechanisms are ineffective, making it easier for fraud to go undetected. Supporting Evidence: Research by Triyanto et al. (2023) and Adinda (2021) confirmed that ineffective monitoring, as indicated by weak board oversight, significantly correlates with higher fraud risk. Contradictory Findings: Hakim et al. (2024) and Biduri et al. (2023), however, found no such relationship, especially when audit committee influence was weak or inconsistent. The divergence may be due to how “monitoring effectiveness” is operationalized across studies.

Rationalization (Change of Auditor)

Rationalization is the cognitive justification used by fraud perpetrators to legitimize their unethical actions. It is often proxied by auditor changes, under the assumption that companies may seek less rigorous auditors. Supporting Evidence: Pranyanita et al. (2021) and Setyono et al. (2023) found that changes in external auditors are significantly associated with increased fraud risk, especially when conducted frequently.

Contradictory Findings: Alfarago et al. (2023) observed no significant effect of auditor change on fraud probability, suggesting the proxy may not universally capture rationalization. This raises concerns about the adequacy of current measurement approaches for rationalization.

Capability (Change of Director)

Capability refers to an individual's power, skill, or position that enables them to commit fraud. This element is often represented by board or CEO turnover. Supporting Evidence: Triyanto et al. (2023) and Nugroho & Diyanty (2022) reported that director changes were linked with heightened fraud potential, particularly when linked to power consolidation or political motives. Contradictory Findings: Pamungkas & Sukma (2022) found no significant effect, indicating that leadership change alone may not be a sufficient trigger without other enabling factors. This element may be context-sensitive, depending on corporate hierarchy and political affiliations.

Arrogance (CEO Photo Frequency)

Arrogance is the overconfidence or ego that leads executives to act unethically, believing they will not face consequences. A novel proxy used in research is the frequency of CEO photographs in annual reports. Supporting Evidence: Achmad et al. (2022) and Biduri et al. (2023) demonstrated a positive

correlation between photo frequency and fraud indicators, implying that excessive self-promotion may reflect deeper behavioral risks. Contradictory Findings: Alfarago et al. (2023) did not observe a significant connection, suggesting the proxy may be culturally or industry-specific. This element warrants further exploration using multiple behavioral indicators.

Collusion (Political Connections)

Collusion involves cooperation between two or more parties to commit fraud, often shielded by political connections or influence networks. Supporting Evidence: Bader et al. (2024) and Sukmadilaga et al. (2022) reported that political ties significantly increased the risk of fraudulent reporting, highlighting the dangers of embedded institutional corruption. Contradictory Findings: Pamungkas & Sukma (2022) and Alfarago et al. (2023) did not find strong evidence, possibly due to limitations in measuring political exposure or variations in regulatory enforcement. Collusion remains one of the most difficult elements to detect and prove empirically.

The audit committee plays a critical role in enhancing corporate governance and ensuring the integrity of financial reporting. Positioned as an oversight body under the board of commissioners, its responsibilities include reviewing financial disclosures, monitoring internal control systems, and liaising with both internal and external auditors. As such, the audit committee is theoretically and practically positioned to mitigate the risk of financial statement fraud, especially when interacting with the various components of the Fraud Hexagon.

Conceptual Justification

Within the agency theory framework, audit committees serve as a monitoring mechanism to reduce the information asymmetry between managers (agents) and shareholders (principals). When audit committees function effectively—through independence, financial expertise, regular meetings, and clear charter—they reduce agency costs and limit managerial discretion that may lead to fraudulent behavior (Ghafran et al., 2022; Hasnan et al., 2021). Hence, their presence and quality are posited to moderate the relationship between fraud drivers (such as pressure or opportunity) and actual fraudulent outcomes.

Empirical Evidence on Moderating Effects

The effectiveness of audit committees as moderators has been the subject of empirical inquiry, with varying results across different studies and contexts. Effective Moderation Observed: Several studies have demonstrated that audit committees can weaken the relationship between fraud risk factors and fraudulent financial reporting. Sari et al. (2022) found that audit committees mitigated the impact of external pressure and director change on fraudulent reporting. Nugroho & Diyanty (2022) concluded that audit committees significantly reduced the influence of stimulus, opportunity, and capability in leading to fraudulent financial statements. Limited or No Moderation Found: In contrast, some studies reported limited or non-significant moderation by audit committees: Hakim et al. (2024) and Juliarta et al. (2024) observed that audit committees failed to moderate the influence of arrogance, collusion, and rationalization-related factors. Bagaskara & Chariri (2024) found that the gender composition of audit committees did not significantly moderate the relationship between external pressure or auditor change and fraud likelihood.

Factors Influencing Moderation Effectiveness

The inconsistency in findings can be attributed to several influencing factors. **Audit Committee Characteristics:** Independence, size, expertise, and meeting frequency are crucial to effectiveness. Committees lacking in these areas are unlikely to exert meaningful influence on fraud mitigation. **Regulatory Environment:** In weak institutional settings, even well-structured committees may lack enforcement power or be compromised by political and organizational pressures. **Interaction with Other Governance Mechanisms:** Audit committees may function effectively only when complemented by other controls such as internal audit departments, whistleblower systems, or external audit quality.

Implications for Research and Practice

The moderating role of audit committees should not be assumed as uniformly effective. Future research should employ more nuanced measures of audit committee effectiveness, possibly including qualitative indicators such as independence from political influence, enforcement history, or ethical culture. For practitioners, strengthening the institutional role of audit committees through training, clearer mandates, and legal protection is crucial to enhance their moderating capacity in fraud prevention.

A review of the literature on the Fraud Hexagon model and the moderating role of audit committees reveals a complex and occasionally contradictory empirical landscape. While the theoretical underpinnings of each fraud component are well established, the consistency of their predictive power across studies varies substantially. This section synthesizes major findings and identifies critical gaps for future investigation. Cross-Study Synthesis like Pressure and Opportunity are the most frequently supported predictors of financial statement fraud. In particular, high leverage and ineffective monitoring have repeatedly shown significant positive correlations with fraud risks in state-owned enterprises (Triyanto et al., 2023; Sari et al., 2022). Rationalization and Capability demonstrate mixed results. Some studies confirm their importance, especially when proxied by change of auditor or change in leadership (Pranyanita et al., 2021; Nugroho & Diyanty, 2022), while others report no significant influence (Alfarago et al., 2023). Arrogance and Collusion, although relatively novel elements in the fraud literature, present an emerging pattern: they tend to be context-sensitive, particularly in political or high-power corporate environments. Indicators such as CEO photo frequency and political affiliation have yielded inconsistent but thought-provoking results (Achmad et al., 2022; Bader et al., 2024). The audit committee's moderating role is well theorized but only partially supported empirically. Its effectiveness appears to depend on the specific fraud component involved (e.g., stronger effect on pressure and opportunity, weaker effect on collusion and arrogance) and on internal characteristics of the committee itself (e.g., independence, expertise).

Key Research Gaps

Despite the growing attention to fraud research, several methodological and contextual limitations remain evident in the existing literature. One major issue lies in operationalization inconsistencies, where different studies employ varying proxies to represent the same fraud element—for instance, external pressure is sometimes measured using leverage ratios, while others use financial targets. These discrepancies make cross-study comparisons challenging and often lead to inconclusive findings. Moreover, most research relies heavily on short-term, cross-sectional data, lacking longitudinal

perspectives or sectoral comparisons that could reveal more enduring patterns of fraud emergence and the effectiveness of prevention mechanisms over time.

Another gap concerns the underexploration of moderating variables. While the role of audit committees has been extensively examined, there is limited understanding of how these interact with other governance mechanisms such as internal auditors, whistleblowing systems, or external regulatory oversight. The geographic and institutional context also presents a significant limitation. The Indonesian corporate landscape, with its blend of state ownership and political entanglement, may not accurately reflect conditions in other emerging or developed economies. Therefore, comparative international research is essential to determine the broader applicability of frameworks such as the Fraud Hexagon.

Finally, behavioral dimensions of fraud—particularly elements like arrogance and rationalization—remain difficult to quantify using traditional metrics. Future studies should consider integrating qualitative or behavioral approaches, including textual analyses of CEO communications or board meeting transcripts, to capture these nuanced psychological aspects. Collectively, addressing these limitations would enrich theoretical understanding and enhance the practical relevance of fraud detection and prevention research.

Toward a More Integrated Model

The current findings suggest that while the Fraud Hexagon provides a comprehensive conceptual framework, its empirical application requires refinement. A more integrated model that includes both structural (e.g., governance mechanisms) and psychological (e.g., ethical climate, executive traits) variables may better capture the multifaceted nature of fraud risk.

CONCLUSION

This literature review critically examined the components of the Fraud Hexagon model—pressure, opportunity, rationalization, capability, arrogance, and collusion—and their empirical associations with financial statement fraud. While theoretical frameworks and empirical evidence suggest that each component can meaningfully contribute to the detection and explanation of fraudulent behavior, findings across studies remain inconsistent.

Elements such as pressure (e.g., financial strain) and opportunity (e.g., ineffective oversight) consistently emerge as strong predictors of fraud, particularly in settings with weak internal governance structures. However, components like rationalization, capability, arrogance, and collusion appear to be highly context-dependent and are often difficult to operationalize reliably across studies.

The audit committee, often proposed as a key moderating variable in corporate governance, shows partial effectiveness in mitigating fraud risks. Its influence is more pronounced in addressing structural fraud enablers (e.g., pressure and opportunity), but less so in curbing behaviorally rooted factors like arrogance and collusion.

IMPLICATION/LIMITATION AND SUGGESTIONS

For practitioners and regulators, the review highlights several actionable points: Strengthening audit committees through improved independence, professional competence, and clear authority can help curb fraud risks. Standardizing fraud detection indicators—especially for intangible components such as

rationalization and arrogance—may improve fraud detection consistency. Integrating behavioral governance tools, such as ethics training and executive profiling, can complement structural controls. Improved monitoring frameworks, especially in state-owned enterprises, are essential to counteract collusion and political interference. Based on the gaps identified, future research should: Adopt longitudinal and multi-sectoral designs to assess how fraud mechanisms evolve over time and across industries. Develop hybrid methodological approaches, integrating qualitative content analysis, behavioral indicators, and survey-based governance metrics. Explore complementary moderating factors beyond the audit committee, such as board diversity, whistleblowing systems, or national regulatory quality. Conduct cross-country comparative studies to assess the global relevance of the Fraud Hexagon, particularly in varied institutional environments.

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