A Systematic Literature Review of the Fraud Triangle Theory (2020-2025)

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Abstrak. *Studi ini secara sistematis mengkaji perkembangan Teori Segitiga Kecurangan selama periode 2020–2025, menyoroti isu inti meningkatnya kecurangan yang merusak kinerja dan kepercayaan organisasi. Studi ini dilakukan sebagai tinjauan pustaka sistematis terhadap artikel yang diterbitkan antara tahun 2020 dan 2025, yang diperoleh dari basis data terkemuka melalui proses pencarian, penyaringan, penilaian kelayakan, dan sintesis temuan. Prosedurnya melibatkan penentuan kata kunci yang terkait dengan Teori Segitiga Kecurangan, memilih studi yang relevan di bidang akuntansi dan audit, dan menganalisis isinya untuk memetakan tren, konteks, dan perluasan teoretis. Hasilnya mengidentifikasi delapan belas artikel yang memenuhi syarat yang secara konsisten memposisikan tekanan dan peluang sebagai faktor penjelasan utama untuk perilaku kecurangan, sementara rasionalisasi menghasilkan beragam temuan. Beberapa studi memperluas model dengan menambahkan elemen-elemen seperti kapabilitas, arogansi, dan peluang teknologi, dan mengoperasionalkannya melalui analitik tingkat lanjut untuk deteksi. Secara prospektif, mengintegrasikan Teori Segitiga Penipuan dengan pendekatan perilaku, tata kelola, dan teknologi dianggap penting untuk upaya pencegahan dan deteksi yang lebih adaptif, sekaligus mempromosikan pengendalian internal yang lebih kuat, pendidikan etika, dan audit berbasis data.*

Kata kunci: *Teori Segitiga Penipuan; Tekanan; Peluang; Rasionalisasi.*

Abstract. *This study systematically examines the development of the Fraud Triangle Theory during the 2020–2025 period, highlighting the core issue of increasing fraud that undermines organizational performance and trust. The study was conducted as a systematic literature review of articles published between 2020 and 2025, obtained from reputable databases through processes of searching, screening, eligibility assessment, and synthesis of findings. The procedure involved determining keywords related to the Fraud Triangle Theory, selecting relevant studies in the fields of accounting and auditing, and analyzing their content to map trends, contexts, and theoretical extensions. The results identified eighteen eligible articles that consistently positioned pressure and opportunity as the main explanatory factors for fraudulent behavior, while rationalization produced varied findings. Several studies expanded the model by adding elements such as capability, arrogance, and technological opportunity, and operationalized it through advanced analytics for detection. Prospectively, integrating the Fraud Triangle Theory with behavioral, governance, and technological approaches is considered crucial for more adaptive prevention and detection efforts, while promoting stronger internal controls, ethical education, and data-driven auditing.*

Keywords: *Fraud Triangle Theory; Pressure; Opportunity; Rationalization.*

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Abstract & Indexing

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Introduction

Fraud remains a serious challenge in various sectors, particularly in accounting, auditing, and organizational governance. Fraudulent practices not only cause significant economic losses but also undermine public trust in the integrity of both government and private institutions (Julian *et al.*, 2022). A report by the Association of Certified Fraud Examiners (ACFE, 2022) reveals that organizations around the world lose an average of about 5% of their total revenue each year due to fraud. This fact underscores the importance of a deep understanding of the factors that cause fraud in order to strengthen prevention and early detection systems within organizations. Various theories have been developed by experts. One of the most influential theories and a widely used basis for research on fraudulent behavior is the Fraud Triangle Theory (FTT) introduced by Cressey and further developed by (Machado & Gartner, 2018).

This theory explains that fraud occurs due to three main factors, namely pressure, opportunity, and rationalization. Pressure relates to financial, social, or psychological pressures faced by individuals; opportunity arises from weak supervision or internal control systems; while rationalization is related to moral justification that makes perpetrators feel that their actions are acceptable (Machado & Gartner, 2018). Over time, the concept of the Fraud Triangle has been developed by various researchers. (Julian *et al.*, 2022) introduced the Fraud Diamond Theory by adding the element of capability (the individual's ability to commit fraud), while Marks (2012), through the Fraud Pentagon Theory, added the element of arrogance as an additional factor. Nevertheless, the Fraud Triangle Theory remains the most widely used theoretical model due to its simplicity in explaining individual behavior and weaknesses in organizational control systems (Lokanan, 2015; Free, 2015). The development of digital technology and global economic transformation make the Fraud Triangle Theory increasingly relevant for review. The emergence of new forms of fraud such as cyber fraud, financial statement manipulation, and electronic banking fraud requires a more dynamic approach to understanding the behavior of fraudsters (Chindara *et al.*, 2025). In the digital age, pressure is no longer limited to financial needs, but also includes social and reputational pressure in the virtual world. Opportunities can arise through gaps in information system security, while rationalization often stems from an organizational culture that is permissive of ethical violations. In the last five years (2020–2025), various studies have tested the relevance of the Fraud Triangle Theory in various contexts and sectors, ranging from the public sector (Din *et al.*, 2022), the corporate sector (Rahayu & Widuri, 2025), educational institutions (Adeoti *et al.*, 2020; Persulessy *et al.*, 2022), to digital financial systems (Chindara *et al.*, 2025). The methodological approaches used are also increasingly diverse, such as classical linear regression, Partial Least Squares Structural Equation Modeling (PLS-SEM), Fuzzy Set Qualitative Comparative Analysis (fsQCA), to machine learning algorithms such as Artificial Neural Network (ANN) and Random Forest (Ghozali & Hadiprajitno, n.d.; Rahayu & Widuri, 2025).

Although the Fraud Triangle Theory (FTT) has long been used to explain fraudulent behavior, a number of studies show that not all of its elements have a consistent influence. The rationalization variable is often not statistically significant, indicating that psychological and moral aspects are difficult to explain through traditional quantitative approaches (Awalluddin *et al.*, 2022; Persulessy *et al.*, 2022). Therefore, integrating FTT with behavioral theories such as the Theory of Planned Behavior, Agency Theory, and Attribution Theory is important to broaden our understanding of the dynamics of fraud (Kawedar *et al.*, 2025). Based on this, this study conducted a Systematic Literature Review of studies that applied Fraud Triangle Theory in the field of accounting and auditing for the period 2020–2025. The aim is to analyze the development of the theory, variations in its application, and the relevance of FTT in explaining fraud phenomena in the digital era, while also providing conceptual and practical contributions to strengthening organizational governance and more adaptive fraud prevention. Based on these objectives, this

study formulates three research questions:
1) RQ1. How is Fraud Triangle Theory applied in accounting research in national and international journals?
2) RQ2. What factors are most frequently studied and what are the trends in the findings?

Through this analysis, it is hoped that a more comprehensive understanding of the trends, patterns, and direction of the development of Fraud Triangle Theory in accounting literature will be obtained, while also providing conceptual and practical contributions to strengthening governance and more adaptive fraud prevention in the future. Fraud Triangle Theory (FTT) was first introduced by Cressey in his classic work "Other People's Money: A Study in the Social Psychology of Embezzlement" and later developed by (Machado & Gartner, 2018). This theory explains that fraudulent acts occur due to the interaction of three main elements, namely pressure, opportunity, and rationalization. Pressure relates to financial, social, or psychological urges; opportunity arises due to weak internal controls, while rationalization is the moral justification for fraudulent acts.

This model has become the main basis in modern accounting and auditing research because it is able to explain the causes of fraud systematically (Zulaikha *et al.*, 2021); (Din *et al.*, 2022). As it developed, this theory was expanded into the Fraud Diamond Theory by adding the element of capability (Julian *et al.*, 2022) and the Fraud Pentagon Theory, which added the elements of arrogance and collusion (Marks (2012); (Doan & Ta, 2023). In the digital context, a number of recent studies have adapted FTT by incorporating the aspect of technological opportunity and integrating it with machine learning algorithms such as Artificial Neural Network and Random Forest to detect financial statement fraud (Ghozali & Hadiprajitno, n.d.; Rahayu & Widuri, 2025; Chindara *et al.*, 2025). Thus, FTT remains relevant and flexible in explaining the dynamics of fraudulent behavior in the modern economic and technological era.

Research Methodology

This study uses a Systematic Literature Review (SLR) approach to identify, assess, and synthesize previous studies discussing the application of Fraud Triangle Theory (FTT) in the fields of accounting, auditing, and organizational governance during the period 2020–2025. This method was chosen because it is capable of comprehensively describing research trends while identifying theoretical and practical gaps in fraud prevention (Tranfield *et al.*, 2003; Kitchenham & Pfleeger, 2002). Each stage includes specific sub-activities. (Tranfield *et al.*, 2003; Kitchenham & Pfleeger, 2002) state that before conducting any SLR, researchers must identify and develop a comprehensive review protocol to build a roadmap to reduce the risk of bias. The protocol includes research identification, research questions, search strategies, study selection criteria and procedures, quality assessment (QA), data extraction strategies, and synthesis of extracted data.

Inclusion And Exclusion Criteria of The Study
In conducting a Systematic Literature Review (SLR), the application of inclusion and exclusion criteria is an important step to ensure that all studies analyzed are relevant to the research objectives (Kayani *et al.*, 2019; Suryandari *et al.*, 2023). This study specifically aims to identify research developments that use Fraud Triangle Theory (FTT) in the context of accounting, auditing, and governance during the period 2020–2025. Inclusion criteria were applied to scientific articles that:
1) Were published between 2020 and 2025,
2) Were published in Scopus or Sinta indexed journals,
3) Used Fraud Triangle Theory (FTT) as the main or supporting theoretical framework,
4) Were written in English or Indonesian, and
5) Use empirical or conceptual methods relevant to the fields of accounting, auditing, or organizational behavior.

Search Strategy

Identify topics and keywords, using terms such as "fraud triangle," "pressure," "opportunity," and "rationalization" in the Scopus, Emerald Insight, ScienceDirect, Taylor & Francis, and SpringerLink databases.

Study Selection Process

All articles that passed the initial screening process were then analyzed in greater depth based on the completeness of their content and the quality of their publication. Articles that were not published through a peer review process, as well as publications in the form of conference proceedings, book chapters, theses, dissertations, and non-academic reports, were excluded from the analysis.

Quality Assessment

The main objective of the Quality Assessment (QA) stage is to ensure accurate decisions regarding the overall quality of the selected articles (N = 18). This quality assessment is important to ensure that each study analyzed meets high methodological standards and theoretical relevance to the Fraud Triangle Theory (FTT).

Data Extraction And Synthesis For Srl Data

Based on the results of systematic searching and selection, 18 scientific articles published between 2020 and 2025 met the eligibility criteria and were used as the basis for analysis in this study. These articles were indexed in Scopus, covering fields such as forensic accounting, auditing, governance, organizational behavior, and digital financial systems.

Results and Discussion

Results
Descriptive Findings Of The Selected Studies

Based on the identification results, 18 articles were found that discussed the application of Fraud Triangle Theory (FTT) during the period 2020–2025.
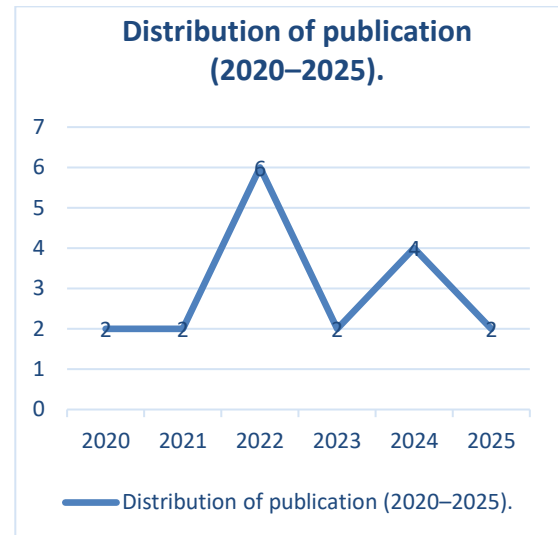

Figure 1. Distribution of Publications by Year

Research trends show a significant increase in 2022–2025, in line with growing attention to fraud issues in the digital age and the strengthening of data-based governance. Most articles are published in Scopus-indexed journals (Q1–Q3).
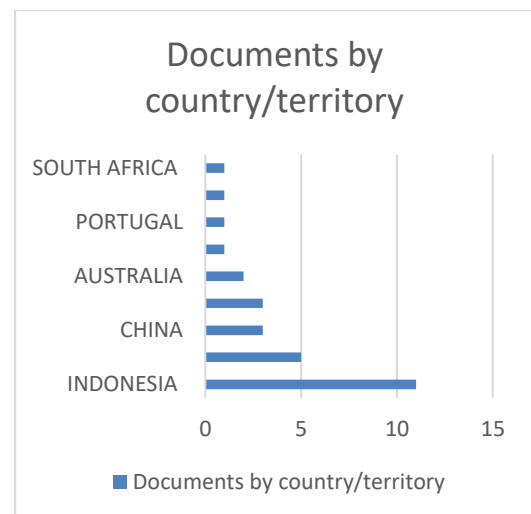

Figure 2. Distribution by Country and Research Context

Geographically, the research is dominated by developing countries such as Indonesia, Malaysia, and Vietnam, as well as several studies from the United States, the United Kingdom, and South Africa. The research context covers three main areas, namely the public sector (corruption and governance), the corporate sector (financial statement manipulation and audit fraud), and the education and accounting profession (ethical and moral behavior). In terms of methodology, quantitative approaches

dominate with regression and Structural Equation Modeling (SEM) methods, while a small portion uses qualitative or mixed technology-based approaches such as Artificial Neural Network (ANN) and Random Forest. This shows that the direction of fraud research is shifting from conventional methods to predictive and digital technology-based analysis.

Thematic Findings and Discussion
1) Application of Fraud Triangle Theory in Accounting Research
   Analysis of 18 articles shows that Fraud Triangle Theory (FTT) is widely applied in the public and private sectors, in three main forms:
   a) As the Main Theoretical Framework
      FTT is used to explain fraudulent behavior, especially in financial statements and organizational corruption (Doan & Ta, 2023; Ratmono & Darsono, 2022; Din et al., 2022). This theory is relevant for linking individual factors, internal control systems, and organizational behavior.
   b) As an Integrative Theory
      Several studies combine FTT with Agency Theory, Theory of Planned Behavior, and Attribution Theory to explain the ethical, moral, and psychological factors behind fraud (Zulaikha et al., 2021; Kawedar et al., 2025).
   c) As a Digital Adaptive Model
      FTT is adapted in the context of cyber fraud and e-banking fraud, by adding the technological opportunity variable and applying ANN and Random Forest algorithms (Chindara et al., 2025; Rahayu & Widuri, 2025).

Overall, FTT remains a dominant, flexible, and adaptive theory to developments in digital accounting research.
2) Most Frequently Studied Factors and Their Results
   The results show that of the three main elements of the Fraud Triangle, the variables of pressure and opportunity are the most frequently studied and have been proven to have a significant effect on the occurrence of fraud. Meanwhile, the variable of rationalization often shows inconsistent results.
   a) Pressure (Pressure)
      The most dominant factor that triggers fraud is financial pressure, excessive targets, and social pressure (Doan & Ta, 2023; Kawedar et al., 2025).
   b) Opportunity
      Arises from weak internal controls and supervision, as well as increased fraud risk due to technological developments without digital security (Ratmono & Darsono, 2022; Chindara et al., 2025).
   c) Rationalization
      Shows inconsistent results; more appropriately assessed qualitatively to understand the moral and ethical justification of fraud perpetrators (Adelopo & Meier, 2022).
   d) Integration of Additional Variables
      Theoretical developments include the variables of Capability, Religiosity, Ethical Leadership, and Technological Advancement (Julian et al., 2022; Kawedar et al., 2025; Chindara et al., 2025), indicating a shift towards multidimensional and comprehensive models.

Discussion
Based on the systematic literature review conducted, the development of the application of the Fraud Triangle Theory (FTT) from 2020 to 2025 shows consistency in understanding the three primary factors that influence fraudulent behavior: pressure, opportunity, and rationalization. Pressure and opportunity remain the most frequently cited elements in relevant studies, reinforcing the view that both external and internal organizational factors play a significant role in facilitating fraudulent activities. Research by Doan and Ta (2023) and Kawedar et al. (2025) indicates that financial and social pressures are dominant triggers for fraudulent behavior, where individuals facing such pressures tend to exploit existing opportunities created by weak internal controls. Similarly, Ratmono and Darsono (2022) argue that the opportunity for fraud arises from inadequate oversight, which increases the risk of fraudulent acts within an organization.

However, the factor of rationalization often yields inconsistent results across studies. Research by Adelopo and Meier (2022) emphasizes that rationalization is harder to quantify because it involves psychological and moral aspects, which are inherently subjective. This aligns with findings from Persulessy *et al.* (2022), who suggest that rationalization is difficult to explain using traditional quantitative methods and is better understood through qualitative approaches. Therefore, integrating FTT with behavioral theories such as the Theory of Planned Behavior and Attribution Theory, as highlighted by Kawedar *et al.* (2025), is critical for expanding our understanding of the psychological dynamics behind fraudulent behavior. In the context of technological advancements, recent studies indicate that the application of FTT needs to be adapted to address the new challenges emerging from the digital transformation. Research by Chindara *et al.* (2025) and Rahayu & Widuri (2025) shows that the opportunities for fraud are expanding due to gaps in digital security systems, which open the door for technology-based fraud, such as electronic banking fraud and financial statement manipulation. Therefore, it is essential to adapt the Fraud Triangle Theory by incorporating the variable of technological opportunity and applying advanced analytics, such as Artificial Neural Networks (ANN) and Random Forest algorithms, to detect fraud. These findings support earlier research that suggests the continued relevance and flexibility of FTT in explaining fraudulent behavior within the modern economic and technological landscape.

This study also reinforces the notion that combining FTT with a multidimensional approach that includes behavioral, ethical, and technological perspectives will enrich fraud prevention efforts. As noted by Julian *et al.* (2022), the development of models like the Fraud Diamond, which integrates the individual's capability to commit fraud, increasingly demonstrates the complexity of factors contributing to fraud. Therefore, further research that combines both qualitative and quantitative methods, while considering cultural and legal differences across countries, is essential to test the applicability of these models globally.

Conclusion

In conclusion, based on a systematic review of eighteen articles published between 2020 and 2025, the Fraud Triangle Theory (FTT) remains a fundamental framework for understanding fraud within accounting, auditing, and organizational governance. The theory's three primary elements—pressure, opportunity, and rationalization—continue to be relevant, with pressure and opportunity consistently showing the most significant influence on fraudulent behavior, while rationalization proves more subjective and challenging to measure empirically. The findings underscore the need to expand FTT into a multidimensional model that integrates behavioral, ethical, and technological perspectives. The integration of FTT with other theoretical frameworks, such as Agency Theory and the Theory of Planned Behavior, along with the application of machine learning algorithms, offers promising avenues for predictive, data-driven forensic accounting research. To prevent fraud effectively, it is essential to enhance internal controls, adopt technology-based audits, and promote accounting ethics education. Policymakers must also prioritize strengthening anti-corruption measures and ensuring transparency in public financial reporting.

However, this study has limitations. It focuses on articles published between 2020 and 2025, specifically those indexed in Scopus and Sinta journals, which means it does not encompass all global research developments related to FTT. Additionally, the predominance of quantitative methods in the reviewed studies leaves the behavioral and ethical dimensions of fraud underexplored. As a result, future research should combine qualitative methods, such as in-depth interviews or case studies, to gain a more comprehensive understanding of the rationalization mechanisms and motivations behind fraudulent actions. Moreover, cross-country studies that account for cultural, legal, and ethical differences are needed to assess the global applicability of the Fraud Triangle model. It is also crucial to optimize the use of emerging technologies, such as machine learning, data analytics, and artificial intelligence, for earlier and more accurate fraud detection. Lastly,

enhancing accounting ethics education and implementing robust governance policies across institutions will play a pivotal role in fostering a culture of integrity, transparency, and accountability in the future.

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