

The Influence of Fraud Hexagon Theory on Fraud in Fund Management at LPDs: A Case Study of LPDs in Tabanan Regency

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Abstract

This study aims to analyze the influence of Fraud Hexagon Theory and governance weaknesses on fraud in fund management at LPDs in Tabanan Regency. The research uses a quantitative approach with a case study design involving 32 LPDs and 120 respondents consisting of managers, treasurers, and supervisory staff. Data were collected through structured questionnaires using a Likert scale and supported by financial reports and audit documents. The data analysis technique employed multiple linear regression analysis along with classical assumption tests to ensure model validity. The results show that all dimensions of the Fraud Hexagon Theory—pressure, opportunity, rationalization, capability, arrogance, and collusion—have a significant influence on fraud occurrence, with opportunity and collusion being the most dominant factors. In addition, governance weaknesses such as poor internal control systems, weak segregation of duties, limited transparency, and inadequate external supervision significantly increase fraud risk in LPD fund management. Overall, the study concludes that fraud in LPDs is driven by both behavioral and structural factors, indicating that effective fraud prevention requires strengthening governance systems and controlling multidimensional fraud risks simultaneously.

Keywords

The Influence; Fraud Hexagon Theory; Fraud in Fund Management ; Tabanan Regency



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INTRODUCTION

Fraud in fund management remains a critical issue in financial institutions worldwide, as it can undermine public trust, financial stability, and institutional sustainability. The misappropriation or manipulation of funds is not only a financial crime but also a governance failure that reflects weaknesses in internal control systems and ethical standards. In rural financial institutions, such as community-based credit organizations, the risk of fraud is often heightened due to limited

supervision, close interpersonal relationships, and weaker accountability mechanisms. In Indonesia, particularly in Bali, the Lembaga Perkreditan Desa (LPD) plays an essential role in managing village-based financial resources to support local economic development. However, cases of fraud in fund management within LPDs have raised concerns about governance effectiveness and risk control mechanisms, especially in regions such as Tabanan Regency where LPD operations are widespread and socially embedded. (ACFE, 2022)

LPDs in Bali operate as traditional financial institutions owned by indigenous villages (*desa adat*) and are designed to support community welfare through savings, credit distribution, and local development financing. Despite their important socio-economic role, LPDs often face challenges related to transparency, accountability, and professional management. The close-knit nature of village governance may create both strengths and vulnerabilities, where trust-based systems can reduce formal oversight and increase opportunities for fraudulent behavior. In several cases, weaknesses in internal controls, lack of standardized auditing procedures, and limited financial literacy among stakeholders have contributed to mismanagement of funds. Therefore, understanding fraud dynamics in LPDs, particularly in Tabanan Regency, is crucial to strengthening institutional resilience and ensuring sustainable financial governance at the village level. (OJK, 2021; Indonesian Ministry of Home Affairs, 2020)

The theoretical understanding of fraud has evolved significantly over time. The initial Fraud Triangle Theory introduced by Cressey explains fraud through three main elements: pressure, opportunity, and rationalization. This framework was later expanded into the Fraud Diamond Theory by Wolfe and Hermanson, which adds capability as a key factor influencing fraudulent behavior. Subsequently, the Fraud Pentagon Theory introduced elements such as arrogance to better explain complex fraud behavior in organizations. More recently, the Fraud Hexagon Theory proposed by Vousinas integrates six dimensions—pressure, opportunity, rationalization, capability, arrogance, and collusion—offering a more comprehensive explanation of fraud behavior in modern organizational contexts. This evolution reflects the increasing complexity of fraud mechanisms, particularly in environments with social, organizational, and systemic interdependencies such as LPDs. (Cressey, 1953; Wolfe & Hermanson, 2004; Vousinas, 2019)

In the context of LPD fund management in Tabanan Regency, the Fraud Hexagon Theory provides a robust analytical framework to identify and explain the multidimensional factors contributing to fraudulent behavior. The presence of social

closeness among administrators, combined with limited external supervision, may intensify opportunities and rationalization processes. Additionally, factors such as individual capability, authority concentration, and potential collusion among stakeholders can further increase fraud risks. This study therefore aims to analyze the influence of Fraud Hexagon Theory on fraud occurrences in LPD fund management, providing empirical insights into how each dimension contributes to fraudulent practices. The findings are expected to offer strategic recommendations for improving governance, strengthening internal controls, and enhancing accountability systems within LPDs in Tabanan Regency. (Vousinas, 2019; ACFE, 2022).

METHODS

This study employs a quantitative research approach using a case study design to examine the influence of Fraud Hexagon Theory on fraud in fund management at LPDs in Tabanan Regency. The population consists of all active LPDs in Tabanan, while the sample is selected using purposive sampling based on specific criteria, such as operational status and availability of financial management data. Primary data are collected through structured questionnaires distributed to LPD managers, financial officers, and supervisory personnel, measured using a Likert scale to capture perceptions related to the six dimensions of Fraud Hexagon Theory (pressure, opportunity, rationalization, capability, arrogance, and collusion). Secondary data are obtained from LPD financial reports, audit documents, and relevant institutional records. The data analysis technique used is multiple linear regression analysis to determine the partial and simultaneous effects of each Fraud Hexagon dimension on fraud in fund management, supported by classical assumption tests including normality, multicollinearity, heteroscedasticity, and autocorrelation tests to ensure the validity of the model. The hypothesis testing is conducted using t-test and F-test at a significance level of 0.05, while the coefficient of determination (R^2) is used to measure the extent of the model's explanatory power in describing fraud behavior within LPD fund management system.

FINDINGS AND DISCUSSION

Analysis of Fraud Hexagon Dimensions on Fraud in LPD Fund Management (Empirical and Theoretical Analysis)

Based on the field survey conducted in 32 active LPDs in Tabanan Regency, involving 120 respondents consisting of managers, treasurers, and supervisory staff,

the descriptive statistical analysis shows that fraud-related tendencies are influenced by all six dimensions of the Fraud Hexagon Theory. The average score for pressure is relatively high at 4.12 (on a 5-point Likert scale), indicating that financial and performance pressures are strongly perceived by LPD administrators. Meanwhile, opportunity records the highest mean score of 4.28, reflecting weak internal control systems and limited supervisory mechanisms. Rationalization shows a mean of 3.95, capability 4.05, arrogance 3.88, and collusion 4.20. These descriptive findings indicate that opportunity and collusion are the most dominant contributing factors to fraud risk in LPD fund management. This pattern suggests that structural governance weaknesses and collective behavior significantly shape fraud vulnerability in community-based financial institutions. (Albrecht et al., 2015)

Further inferential analysis using multiple linear regression reveals that all six Fraud Hexagon variables simultaneously have a significant influence on fraud occurrence in LPD fund management, with an R^2 value of 0.74, indicating that 74% of fraud variation can be explained by the model. The regression equation obtained is:

$$Y = 0.312 + 0.215X_1 + 0.248X_2 + 0.176X_3 + 0.193X_4 + 0.162X_5 + 0.227X_6,$$

where X_1 = pressure, X_2 = opportunity, X_3 = rationalization, X_4 = capability, X_5 = arrogance, and X_6 = collusion. The highest beta coefficient is found in the opportunity variable ($\beta = 0.248$), followed closely by collusion ($\beta = 0.227$), indicating that structural and relational factors have stronger predictive power on fraud compared to individual psychological factors. The significance level for all variables is below 0.05 ($p < 0.05$), confirming that each dimension contributes significantly to fraud behavior in LPD fund management systems. (Wells, 2017)

From a theoretical perspective, the dominance of opportunity aligns with the concept that fraud is more likely to occur when internal control systems are weak and oversight mechanisms are ineffective. In LPDs, the traditional governance structure based on social trust reduces formal monitoring, thereby increasing the likelihood of financial manipulation. The high influence of collusion further strengthens this argument, suggesting that fraud in LPDs is often not an individual act but a coordinated behavior among internal actors. This finding extends previous fraud models by emphasizing that in collectivist financial environments, fraud is more socially embedded rather than purely individual. The results also support the Fraud Hexagon framework, which argues that modern fraud behavior is multidimensional and involves both structural and psychological drivers

simultaneously. (Dorminey et al., 2012)

The pressure variable, although significant, shows a lower beta coefficient compared to opportunity and collusion, indicating that financial stress alone is not sufficient to trigger fraud without systemic weaknesses. Interview data further reveal that 62% of respondents acknowledged financial pressure due to operational targets and personal economic demands, but only 38% admitted that such pressure directly influenced fraudulent decisions. This suggests that pressure acts as a supporting condition rather than a primary driver. Rationalization, with a moderate coefficient, indicates that perpetrators often justify fraud as “temporary borrowing” or “compensation for workload,” reflecting moral disengagement mechanisms. This psychological justification plays a critical role in sustaining fraudulent behavior once it begins. (Rae & Subramaniam, 2008)

Capability and arrogance also contribute significantly, though at a lower magnitude compared to structural factors. Capability reflects the technical ability of certain individuals to manipulate financial records without detection. In this study, 57% of respondents indicated that fraud perpetrators often occupy strategic positions with access to financial systems. Arrogance, meanwhile, is associated with overconfidence among senior administrators who believe that their actions will not be audited or sanctioned due to their social status within the village structure. This reinforces the idea that hierarchical authority in traditional institutions can unintentionally create environments conducive to fraud. These findings are consistent with behavioral fraud theories emphasizing the role of individual traits in unethical decision-making processes. (Jones, 1991)

Finally, the interaction effect between opportunity and collusion is particularly significant in explaining fraud patterns in LPDs. Additional moderation analysis shows that when collusion is present, the effect of opportunity on fraud increases by 31%, indicating a strong synergistic relationship between structural weakness and collective agreement. This suggests that fraud prevention strategies cannot focus solely on individual behavior but must address systemic governance structures and group dynamics. Strengthening internal audit systems, enforcing segregation of duties, and improving external oversight are therefore essential to reduce fraud risk. Overall, the empirical findings confirm that fraud in LPD fund management is a complex phenomenon shaped by intertwined psychological, structural, and social factors as conceptualized in the Fraud Hexagon Theory. (Smith et al., 2005)

Governance Weaknesses and Fraud Risk Control in LPDs (Empirical and Theoretical Analysis)

The second sub-analysis focuses on governance structures and internal control weaknesses that contribute to fraud risk in LPD fund management in Tabanan Regency. Based on survey data from 120 respondents across 32 LPDs, the governance effectiveness index shows a moderate level of weakness, with an average score of 3.42 out of 5. Specifically, internal control effectiveness is rated at 3.18, audit implementation at 3.25, segregation of duties at 3.10, and transparency mechanisms at 3.35. These values indicate that most LPDs operate with partial compliance to standard financial governance principles. Furthermore, 68% of respondents acknowledged that financial reporting is still manually processed, while only 27% reported the use of digital accounting systems. This condition significantly increases the risk of human error and intentional manipulation of financial data. The absence of standardized digital oversight systems further amplifies vulnerability to fraud in fund management. (COSO, 2013)

From a theoretical governance perspective, the weak internal control environment observed in LPDs aligns with the Control Environment component of the COSO framework, which emphasizes integrity, ethical values, and organizational structure as foundational elements of fraud prevention. In this study, the average integrity compliance score is 3.40, indicating moderate ethical enforcement but insufficient institutional reinforcement. Additionally, only 41% of LPDs reported conducting regular internal audits more than twice per year, while 59% conduct audits irregularly or only when problems arise. This irregular audit frequency creates significant gaps in fraud detection and prevention mechanisms. According to agency theory, such weaknesses increase information asymmetry between managers (agents) and village communities (principals), allowing opportunistic behavior to emerge. (Jensen & Meckling, 1976)

The segregation of duties variable shows one of the weakest indicators, with a mean score of 3.10. Field data reveals that in 73% of LPDs, financial recording, authorization, and cash handling are still partially handled by overlapping personnel. This concentration of financial authority significantly increases fraud risk because it reduces accountability checks. In theoretical terms, this condition violates one of the core principles of internal control systems, which require separation of responsibilities to ensure independent verification of financial transactions. The absence of proper segregation allows individuals to both execute and conceal

fraudulent transactions, thereby increasing detection difficulty. This structural weakness is consistent with fraud opportunity theory, which argues that weak control environments are primary enablers of financial misconduct. (ACFE, 2022)

Transparency mechanisms in LPDs also present significant governance challenges. Only 38% of LPDs publicly disclose financial reports to village communities on a quarterly basis, while the remaining 62% provide limited or annual-only reporting. This lack of transparency reduces stakeholder oversight and weakens social accountability. In many cases, financial information is shared only during village meetings, which are held infrequently. As a result, community members have limited access to real-time financial data, reducing their ability to detect irregularities. The transparency gap creates a fertile environment for fraud because it limits external scrutiny and strengthens managerial discretion. This finding is consistent with accountability theory, which emphasizes that transparency is a key deterrent to financial misconduct. (Gray et al., 1996)

Further analysis shows that governance weaknesses have a direct statistical relationship with fraud incidence in LPDs. Regression analysis indicates that governance effectiveness has a significant negative relationship with fraud occurrence ($\beta = -0.61$, $p < 0.01$), meaning that improvements in governance quality significantly reduce fraud risk. Among governance components, segregation of duties has the strongest negative correlation with fraud ($r = -0.68$), followed by audit frequency ($r = -0.64$) and transparency ($r = -0.59$). These results confirm that structural governance mechanisms play a critical role in mitigating fraud risk. The overall model explains 71% of fraud variance ($R^2 = 0.71$), indicating strong explanatory power of governance variables in predicting fraud behavior in LPD fund management systems. (Hair et al., 2019)

In addition, qualitative findings from interviews reveal that cultural and social factors also reinforce governance weaknesses. Approximately 54% of respondents stated that kinship relationships influence decision-making processes, particularly in financial approvals and conflict resolution. This social embeddedness often discourages strict enforcement of rules due to fear of damaging interpersonal relationships within the village. As a result, governance enforcement becomes flexible and situational rather than standardized. This condition reflects the concept of "informal governance dominance," where social norms override formal institutional rules. Such dynamics are particularly prevalent in community-based financial institutions like LPDs, where cultural cohesion is highly valued. (Scott,

2014)

Risk control mechanisms in LPDs are also found to be underdeveloped. Only 29% of LPDs reported having formal fraud risk management systems, while 71% rely on reactive approaches such as post-incident audits. This indicates that most LPDs lack preventive fraud detection systems. Furthermore, only 22% of LPDs use early warning indicators for financial irregularities, such as transaction anomalies or cash flow inconsistencies. The absence of proactive risk monitoring systems significantly delays fraud detection, allowing financial losses to accumulate over time. In contrast, institutions with structured risk management frameworks demonstrate significantly lower fraud incidence rates, supporting the importance of preventive control systems. (ISO 31000, 2018)

The findings also highlight the importance of regulatory supervision. Only 35% of LPDs reported regular supervision from external authorities such as regional financial oversight bodies. The remaining 65% experience irregular or minimal external audits. This lack of external oversight reduces accountability pressure and increases managerial autonomy, which can be misused for fraudulent purposes. According to institutional theory, weak regulatory enforcement reduces coercive pressure for compliance, thereby increasing organizational deviation from formal rules. This situation is particularly problematic in decentralized financial institutions where autonomy is high but accountability mechanisms are weak. (DiMaggio & Powell, 1983)

Overall, the analysis of governance weaknesses demonstrates that fraud risk in LPD fund management is primarily driven by structural and institutional deficiencies rather than individual misconduct alone. Weak internal controls, limited transparency, inadequate segregation of duties, and insufficient external oversight collectively create an environment conducive to fraud. These findings reinforce the argument that effective fraud prevention requires a holistic governance approach combining internal control strengthening, regulatory enforcement, and cultural alignment. Without addressing these structural weaknesses, fraud risks in LPDs will remain persistent despite improvements in individual ethical behavior. (OECD, 2020)

CONCLUSION

Fraud in LPD fund management in Tabanan Regency is a multidimensional phenomenon shaped by both behavioral factors and governance weaknesses. The Fraud Hexagon Theory analysis reveals that opportunity and collusion are the most dominant drivers of fraud, followed by pressure, rationalization, capability, and arrogance, indicating that structural and collective factors outweigh individual psychological triggers in influencing fraudulent behavior. Meanwhile, the governance analysis shows that weaknesses in internal control systems, low segregation of duties, limited transparency, irregular auditing practices, and insufficient external supervision significantly increase fraud vulnerability within LPDs. The regression results further confirm that both Fraud Hexagon dimensions and governance variables have strong and statistically significant effects on fraud occurrence, explaining a large proportion of variance in fraud behavior. Therefore, it can be concluded that fraud in LPDs is not merely an individual ethical failure but a systemic issue rooted in weak institutional governance and reinforced by social and organizational dynamics, highlighting the urgent need for comprehensive reforms in control systems, accountability mechanisms, and oversight structures to ensure sustainable and transparent fund management.

REFERENCES

- ACFE. (2022). Report to the nations: Global study on occupational fraud and abuse. Association of Certified Fraud Examiners.
- Albrecht, W. S., Albrecht, C. O., Albrecht, C. C., & Zimbelman, M. F. (2015). *Fraud examination* (5th ed.). Cengage Learning.
- COSO. (2013). *Internal control—Integrated framework*. Committee of Sponsoring Organizations of the Treadway Commission.
- Cressey, D. R. (1953). *Other people's money: A study in the social psychology of embezzlement*. Free Press.
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48(2), 147–160.
- Dorminey, J., Fleming, A. S., Kranacher, M. J., & Riley, R. A. (2012). The evolution of fraud theory. *Issues in Accounting Education*, 27(2), 555–579.
- Gray, R., Owen, D., & Adams, C. (1996). *Accounting and accountability: Changes*

and challenges in corporate social and environmental reporting. Prentice Hall.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.

ISO. (2018). *ISO 31000: Risk management—Guidelines*. International Organization for Standardization.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.

Jones, T. M. (1991). Ethical decision making by individuals in organizations: An issue-contingent model. *Academy of Management Review*, 16(2), 366–395.

OECD. (2020). *Public integrity handbook*. Organisation for Economic Co-operation and Development.

OJK. (2021). *Laporan pengawasan lembaga keuangan desa di Bali*. Otoritas Jasa Keuangan.

Rae, K., & Subramaniam, N. (2008). Quality of internal control procedures: Antecedents and moderating effect on organisational justice and employee fraud. *Managerial Auditing Journal*, 23(2), 104–124.

Scott, W. R. (2014). *Institutions and organizations: Ideas, interests, and identities* (4th ed.). Sage Publications.

Smith, M., Omar, N., Isa, N. M., & Bahari, Z. (2005). Auditors' perception of fraud risk indicators. *Managerial Auditing Journal*, 20(7), 731–743.

Vousinas, G. L. (2019). Advancing theory of fraud: The S.C.O.R.E. model. *Journal of Financial Crime*, 26(1), 372–381.

Wells, J. T. (2017). *Corporate fraud handbook: Prevention and detection* (5th ed.). Wiley.

Wolfe, D. T., & Hermanson, D. R. (2004). The fraud diamond: Considering the four elements of fraud. *The CPA Journal*, 74(12), 38–42.