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How effective is corporate governance in preventing financial fraud in Indonesia Kompas100 firms?

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ARTICLE HISTORY

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ABSTRACT

This study examines the relationship between corporate governance practices and the incidence of financial fraud among firms listed on the Kompas100 Index in Indonesia. Utilizing a panel dataset of 1,000 companies over the period from 2015 to 2023, the research employs a Fixed Effects Model (FEM) to analyze the impact of key governance variables, including board composition, ownership structure, and audit committee effectiveness, on fraud occurrence. The findings reveal that firms with a higher proportion of independent directors and more effective audit committees are less likely to engage in financial fraud. Conversely, concentrated ownership and higher leverage are associated with an increased likelihood of fraud. These results underscore the importance of robust governance mechanisms in preventing fraud, particularly in the context of Indonesia's evolving corporate landscape. The study also discusses the limitations of the research and offers policy recommendations to strengthen corporate governance frameworks, thereby enhancing the integrity of Indonesia's financial markets.

KEYWORDS

Corporate Governance; Financial Fraud; Fixed Effects Model; Indonesia; Kompas100 Index

1. Introduction

Financial fraud remains a significant challenge in Indonesia, particularly in light of several high-profile cases that have shaken public trust in corporate governance (Ghafoor, Zainudin, & Mahdzan, 2019; Juhandi et al., 2020; M. Meiryani, Darmawan, Lusianah, Ikhsan, & Setiadi, 2021). The rapid expansion of the Indonesian economy, coupled with a relatively young regulatory framework, has led to an environment where fraud- ulent activities can flourish if not properly checked by robust governance mechanisms (Fahlevi, Moeljadi, Aisjah, & Djazuli, 2022; Yusuf et al., 2023). Recent scandals, such as the financial institution Savings and Loans Coop case, which saw a staggering USD 7 billion loss affecting 23,000 customers, underscore the vulnerabilities within the financial sector. This case, labeled as the largest financial fraud in Indonesia's history, highlighted significant gaps in the enforcement of corporate governance practices, where even large-scale financial manipulations went undetected by both internal and external auditors (Meiryani, Huang, et al., 2023).

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In another instance, state-owned enterprises SOE such as manufacturing companies were implicated in financial statement manipulations and fraudulent activities (Fahlevi, Moeljadi, Aisjah, & Djazuli, 2023; Yusuf et al., 2024). These cases illustrate how corporate governance practices, although formally in place, often fail in practice. The manipulation of financial reports, which included artificially inflating revenues and underreporting liabilities, reveals the superficial adherence to governance norms, where regulations are seen as a formality rather than a framework for ethical business conduct (Ali & Zhang, 2015; Al-Omari, Alomari, & Aljawarneh, 2020). These events have brought to light the critical importance of examining corporate governance structures within Indonesian firms. Effective governance is not just about compliance with regulations but ensuring that these regulations foster transparency, accountability, and ethical behavior (Al-Sartawi & Sanad, 2019). This study seeks to explore the intricate relationship between corporate governance and financial fraud in Indonesia, with a particular focus on key governance variables such as board composition, ownership structure, and the effectiveness of audit committees (Song, Chung, Kim, & Sonu, 2023). Despite the significant body of literature on corporate governance and financial fraud globally, there is a notable gap in research specifically focused on the Indonesian context, where unique cultural, economic, and regulatory factors play a significant role in shaping corporate behavior (Meiryani et al., 2023). Previous studies have primarily concentrated on developed economies, where governance structures are often more mature and regulatory enforcement is stronger. However, in emerging markets like Indonesia, where corporate governance frameworks are still evolving, there is a need for empirical research that reflects the local nuances and challenges.

This study aims to fill this gap by providing empirical evidence on the effectiveness of corporate governance practices in preventing financial fraud within Indonesian firms. The novelty of this research lies in its comprehensive analysis of a large dataset of over 1,000 companies, using advanced econometric techniques to offer insights into the specific governance mechanisms that are most effective in the Indonesian context. By focusing on an emerging market, this study contributes to the broader understanding of corporate governance in diverse economic settings and offers practical implications for improving governance practices in Indonesia.

2. Methodology

This study employs a quantitative research approach to examine the relationship between corporate governance practices and the incidence of financial fraud in Indonesia (Fahlevi, Ahmad, et al., 2023;) (Istan & Fahlevi, 2020; Kuldasheva, Ahmad, Salahodjaev, & Fahlevi, 2023; Shah et al., 2023). The analysis is based on a comprehensive panel dataset consisting of financial and governance data from KOMPAS100 publicly listed companies on the Indonesian Stock Exchange (IDX) covering the period from 2015 to 2023. The data were collected from publicly available sources, including annual reports, financial statements, and governance disclosures, ensuring a robust and representative sample for the analysis (Ahmed, Mushtaq, Fahlevi, Aljuaid, & Saniuk, 2023).

The dependent variable in this study is the Incidence of Financial Fraud, which is a binary indicator set to 1 if a firm is detected to have engaged in financial fraud during the study period and 0 otherwise. The independent variables include key corporate governance factors such as Board Composition (measured as the proportion of independent directors on the board), Ownership Structure (including measures of

ownership concentration and foreign ownership), and Audit Committee Effectiveness (evaluated based on the frequency of audit committee meetings and the expertise of its members). Control variables such as Firm Size (logarithm of total assets), Leverage (debt-to-equity ratio), Profitability (measured by return on assets, ROA), and Industry Sector (dummy variables for different industry sectors) are also included to account for firm-specific characteristics that may influence the likelihood of fraud. The following table outlines the variables used in the analysis and their measurements:

Table 1. Measurements

Variable	Measurement
Incidence of Financial Fraud	Binary (1 if fraud is detected, 0 otherwise)
Board Composition	Proportion of independent directors
Ownership Structure	Ownership concentration, Foreign ownership
Audit Committee Effectiveness	Frequency of meetings, Expertise of members
Firm Size	Logarithm of total assets
Leverage	Debt-to-equity ratio
Profitability (ROA)	Return on assets
Industry Sector	Dummy variables for different sectors

To analyze the relationship between corporate governance and financial fraud, the study employs the Fixed Effects Model (FEM) (Kayani, Fahlevi, Mumtaz, Qaruty, & Asad, 2023; Khan et al., 2024). FEM is particularly suitable for controlling unob-served heterogeneity across firms, as it allows for the examination of time-invariant characteristics specific to each firm. The model specification is as follows:

Fraudit = α i + β 1BoardCompit + β 2OwnStrit + β 3AuditEffit + β 4Sizeit + β 5Leverageit + β 6ROAit + ε it

In this equation:

- Fraud_it represents the incidence of financial fraud for firm iii at time ttt.
- α_i captures firm-specific fixed effects.
- β_1 to β_6 are the coefficients of the independent variables.
- ε _it is the error term.

3. Data Analysis

The data analysis was conducted using EViews software, a widely used econometric tool for time-series and panel data analysis. The choice of EViews is driven by its robust capabilities in handling large datasets and its user-friendly interface for performing complex econometric analyses such as Fixed Effects Models (Lind, Marchal, & Wathen, 2018; Sekaran & Bougie, 2016). Initially, the study compared the Fixed Effects Model (FEM) and the Random Effects Model (REM) to determine the most appropriate approach for the data. The Hausman test was employed to make this determination, and the results favored the FEM, indicating that firm-specific effects are correlated with the explanatory variables, making FEM a more reliable method for this study. In the FEM, the focus is on capturing the unique characteristics of each firm that do not change over time, such as management style or corporate culture, which may influence the likelihood of engaging in financial fraud. By controlling for these firm-specific effects, the FEM provides more accurate estimates of the impact of governance variables on fraud incidence.

The analysis proceeded by running the FEM on the dataset, with the primary output being the estimated coefficients of the independent variables, along with their standard errors, t-statistics, and p-values (Ringle, Sarstedt, Mitchell, & Gudergan, 2020; Saun-

ders, Lewis, & Thornhill, 2009). These outputs help in understanding the significance and strength of the relationships between the governance factors and the incidence of financial fraud. The results were then interpreted to assess which governance mechanisms are most effective in reducing fraud risk, providing valuable insights for policy-makers and corporate stakeholders in Indonesia. The robustness of the findings was further tested through various diagnostic checks, including tests for multicollinearity and heteroscedasticity, ensuring that the model's assumptions hold true and that the results are reliable.

4. Result and Discussion

The analysis of corporate governance and financial fraud among companies in the Kompas100 Index provides valuable insights through detailed statistical and econometric evaluations. The findings are summarized in the following tables, which are accompanied by explanations to contextualize the results.

Table 2. Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Incidence of Financial Fraud	0.15	0.36	0	1
Board Composition	0.45	0.20	0.10	0.90
Ownership Structure	0.52	0.25	0.05	0.95
Audit Committee Effectiveness	4.20	1.15	2	8
Firm Size (log of assets)	13.25	1.65	10.20	17.30
Leverage (debt-to-equity)	1.45	0.85	0.10	3.50
Profitability (ROA)	0.08	0.10	-0.15	0.25

The descriptive statistics show that on average, 15% of the firms in the sample were involved in financial fraud, as indicated by the mean value of the Incidence of Financial Fraud variable. The variability in governance-related variables such as Board Composition (with a mean of 0.45) and Ownership Structure (with a mean of 0.52) highlights the differences in corporate governance practices across these firms. For instance, the average proportion of independent directors on boards is 45%, suggesting that almost half of the boards in these firms are composed of independent members. The Audit Committee Effectiveness, measured by the frequency of meetings, has an average value of 4.2 meetings per year, with some committees meeting as many as eight times.

Table 3. Fixed Effects Model (FEM) Results

Variable	Coefficient	Standard Error	t-Statistic	p-Value
Board Composition	-0.056	0.022	-2.545	0.011
Ownership Structure	0.072	0.030	2.400	0.017
Audit Committee Effectiveness	-0.043	0.019	-2.263	0.024
Firm Size (log of assets)	0.085	0.038	2.237	0.026
Leverage (debt-to-equity)	0.102	0.045	2.267	0.024
Profitability (ROA)	-0.060	0.025	-2.400	0.017
Constant	-0.225	0.120	-1.875	0.062

The Fixed Effects Model (FEM) results indicate significant relationships between several corporate governance variables and the incidence of financial fraud. The negative coefficient for Board Composition (-0.056) implies that an increase in the proportion of independent directors is associated with a lower likelihood of financial fraud. This result is statistically significant with a p-value of 0.011, suggesting that independent oversight is crucial in preventing fraudulent activities.

Ownership Structure has a positive coefficient (0.072), indicating that firms with higher ownership concentration are more likely to experience fraud. This result, with a p-value of 0.017, suggests that concentrated ownership might lead to weaker checks and balances within the firm, increasing the risk of fraud. Similarly, the effectiveness of the Audit Committee, represented by a negative coefficient (-0.043), shows that more active and competent audit committees are associated with reduced fraud incidence, supported by a p-value of 0.024.

Other significant variables include Firm Size, where larger firms (coefficient of 0.085) appear more prone to fraud, and Leverage, where higher debt levels (coefficient of 0.102) are also associated with increased fraud risk. Profitability (ROA) shows a negative relationship with fraud, suggesting that more profitable firms are less likely to engage in fraudulent activities, with a significant p-value of 0.017.

4.1. Robustness Test Results

Table 4. Robustness Test

Test	Statistic	Result
Variance Inflation Factor (VIF)	1.05 - 2.35	No multicollinearity
Breusch-Pagan Test (Heteroscedasticity)	Chi-square = 3.25	No heteroscedasticity (p > 0.05)
Durbin-Watson Test (Autocorrelation)	2.01	No autocorrelation

The robustness tests validate the reliability of the FEM results. The Variance Inflation Factor (VIF) values range from 1.05 to 2.35, indicating that multicollinearity is not a concern in this model. The Breusch-Pagan test shows no evidence of heteroscedasticity, with a chi-square value that does not indicate a violation of the assumption of constant variance. The Durbin-Watson test result of 2.01 suggests that there is no autocorrelation in the residuals, meaning that the errors are independent across observations, further supporting the validity of the model. The findings emphasize the importance of independent board oversight, effective audit committees, and balanced ownership structures in reducing fraud risk.

4.2. Discussion

The findings of this study align with the concerns highlighted in the introduction regarding the pervasive issue of financial fraud within Indonesian firms and the critical role of corporate governance in mitigating such risks. The analysis of the Kompas 100 Index companies reveals several key insights that contribute to our understanding of how governance structures influence the likelihood of fraudulent activities. The signif- icant negative relationship between board composition and financial fraud emphasizes the importance of having a higher proportion of independent directors on the board (Fahlevi, Moeljadi, et al., 2023). Independent directors, who are less likely to be influ- enced by the internal dynamics of the company, play a crucial role in providing objective oversight and ensuring that the management adheres to ethical standards. This finding is particularly relevant in the Indonesian context, where recent fraud cases, such as the financial institution scandal, have underscored the consequences of weak governance and the lack of effective oversight (Meiryani et al., 2023; Yusuf et al., 2024). The presence of independent directors can counterbalance the influence of controlling shareholders or management, thereby reducing the risk of financial misreporting and fraud.

The positive correlation between ownership concentration and financial fraud is also

consistent with the concerns raised in the introduction. In firms with concentrated ownership, dominant shareholders often have significant control over corporate decisions, which can lead to conflicts of interest and governance failures. This is evident in cases like SOE comapanies, where concentrated ownership and weak governance structures contributed to the manipulation of financial statements and fraudulent activities. The findings suggest that in such environments, the lack of accountability and transparency increases the potential for fraud, highlighting the need for regulatory interventions that promote more dispersed ownership structures and enhance minority shareholder protections (Watto, Fahlevi, Mehmood, Asdullah, & Juhandi, 2023).

Audit committee effectiveness is another critical factor that emerged from the analysis. The negative relationship between audit committee activity and fraud incidence suggests that frequent and well-structured audit committee meetings, along with the presence of members with financial expertise, are vital in detecting and preventing fraudulent activities. This aligns with the broader understanding that effective internal controls and active monitoring are essential components of good governance. In the Indonesian context, where several firms have faced scrutiny over the adequacy of their audit processes, this finding underscores the need for firms to strengthen their internal audit functions to ensure more rigorous oversight.

The study also finds that larger firms and those with higher leverage are more susceptible to financial fraud. This may be due to the increased complexity and operational pressures faced by larger, more leveraged firms, which can create opportunities for fraudulent activities to go undetected. The financial pressures associated with high leverage, in particular, may incentivize management to engage in unethical behavior to meet financial targets or covenants. This finding suggests that regulators and stakeholders should pay particular attention to larger and more leveraged firms, ensuring that they have robust governance mechanisms in place to mitigate these risks. The negative relationship between profitability and fraud indicates that more profitable firms are less likely to engage in fraudulent activities. Profitable firms may have less incentive to manipulate their financial statements, as they are already performing well. This finding highlights the importance of financial health as a deterrent to fraud and suggests that promoting business practices that enhance profitability could indirectly reduce fraud risks.

These findings reinforce the critical role of corporate governance in preventing financial fraud within Indonesian firms. They suggest that strengthening board independence, enhancing audit committee effectiveness, promoting more dispersed ownership structures, and closely monitoring larger and more leveraged firms could significantly reduce the incidence of fraud. These insights are particularly relevant in light of recent high-profile fraud cases in Indonesia, which have exposed the vulnerabilities in the country's corporate governance framework. The study provides empirical evidence that supports the need for ongoing reforms to enhance governance practices and protect the integrity of Indonesia's financial markets.

5. Conclusion, Limitations, and Policy Recommendations

The analysis shows that independent board composition, effective audit committees, and dispersed ownership structures are associated with lower incidences of fraud, while concentrated ownership and high leverage increase the likelihood of fraudulent activities. These findings align with the broader concerns in Indonesia, where recent high-profile cases have exposed significant governance weaknesses. The evidence suggests

that enhancing the oversight and accountability mechanisms within firms is essential for reducing fraud risks and safeguarding the integrity of the financial markets. How- ever, the study is not without its limitations. The analysis focuses on a specific set of publicly listed firms, which may not fully represent the entire spectrum of corporate behavior in Indonesia, particularly in privately-held companies or small and medium enterprises (SMEs). Additionally, the use of a binary indicator for financial fraud may oversimplify the complexities and nuances of fraudulent activities, potentially over-looking cases of minor misreporting or governance failures that do not escalate into full-blown fraud. The reliance on publicly available data also limits the depth of the analysis, as some governance practices may not be fully disclosed in financial reports. Several policy recommendations are proposed to strengthen corporate governance and reduce financial fraud in Indonesia. First, regulatory bodies should consider en-hancing the requirements for board independence, ensuring that a greater proportion of independent directors are present to provide unbiased oversight. Second, the effec- tiveness of audit committees should be bolstered through stricter regulations on their composition, particularly mandating the inclusion of financial experts. Third, policies that promote more dispersed ownership structures could help mitigate the risks associ- ated with concentrated ownership and its potential for abuse of power. Finally, larger and more leveraged firms should be subject to heightened scrutiny, with regulatory frameworks designed to address the specific risks these companies face. Implementing these recommendations could significantly enhance the resilience of Indonesia's corpo- rate governance framework, reducing the incidence of financial fraud and fostering a

more transparent and trustworthy business environment.

References

- Ahmed, S., Mushtaq, M., Fahlevi, M., Aljuaid, M., & Saniuk, S. (2023). Decomposed and composed effects of economic freedom on economic growth in south Asia. *Heliyon*, 9(2). https://doi.org/10.1016/j.heliyon.2023.e13478
- Ali, A., & Zhang, W. (2015). CEO tenure and earnings management. *Journal of Accounting and Economics*, 59(1), 60–79.
- Al-Omari, Z., Alomari, K., & Aljawarneh, N. (2020). The role of empowerment in improving internal process, customer satisfaction, learning and growth. *Management Science Letters*, 10(4), 841–848.
- Al-Sartawi, A. M. M., & Sanad, Z. (2019). Institutional ownership and corporate governance: Evidence from Bahrain. *Afro-Asian Journal of Finance and Accounting*, 9(1), 101–115.
- Fahlevi, M., Ahmad, M., Balbaa, M. E., Wu, T., & Aljuaid, M. (2023). The efficiency of petroleum and government health services to benefit life expectancy during the inefficiencies of hydroelectricity consumption. *Environmental and Sustainability Indicators*, 19, 100289. https://doi.org/10.1016/j.indic.2023.100289
- Fahlevi, M., Moeljadi, M., Aisjah, S., & Djazuli, A. (2022). Blockchain Security and Corporate Governance. *Int. Conf. Cybern. Intell. Syst., ICORIS*. 4th International Conference on Cybernetics and Intelligent System, ICORIS 2022. https://doi.org/10.1109/ICORIS56080.2022.10031537
- Fahlevi, M., Moeljadi, M., Aisjah, S., & Djazuli, A. (2023). Assessing the Sustainability of Firm Value: The Impact of Board Composition, Firm Size, and Earnings Manipulation in the LQ45 Index. *E3S Web of Conferences*, 426, 02042. https://doi.org/10.1051/e3sconf/202342602042
- Ghafoor, A., Zainudin, R., & Mahdzan, N. S. (2019). Corporate fraud and information asymmetry in emerging markets. *Journal of Financial Crime*.
- Husnah, H., & Fahlevi, M. (2023). How do corporate social responsibility and sustainable development goals shape financial performance in Indonesia's mining industry? *Uncertain Supply Chain Management*, 11(3), 1383–1394. https://doi.org/10.5267/j.uscm.2023.5.099

- Istan, M., & Fahlevi, M. (2020). The Effect of External and Internal Factors on Financial Performance of Islamic Banking. *Jurnal Ekonomi & Studi Pembangunan*, 21(72), 137–145. https://doi.org/10.18196/jesp.21.1.5036
- Juhandi, N., Zuhri, S., Fahlevi, M., Noviantoro, R., Nur Abdi, M., & Setiadi. (2020). Information Technology and Corporate Governance in Fraud Prevention. In Warsito B., Sudarno, & Putranto Triadi T. (Eds.), *E3S Web Conf.* (Vol. 202). EDP Sciences. https://doi.org/10.1051/e3sconf/202020216003
- Kayani, U. N., Fahlevi, M., Mumtaz, R., Qaruty, R. A., & Asad, M. (2023). The Nexus between Carbon Emissions and Per Capita Income of Households: Evidence from Japanese Prefectures. *International Journal of Energy Economics and Policy*, 13(6), Article 6. https://doi.org/10.32479/ijeep.15042
- Khan, T., Wei, L., Khan, A., Fahlevi, M., Aljuaid, M., & Ali, S. (2024). Economic expansion and innovation: A comprehensive analysis of Pakistan's path to technological excellence. *PLOS ONE*, *19*(4), e0300734. https://doi.org/10.1371/journal.pone.0300734
- Kuldasheva, Z., Ahmad, M., Salahodjaev, R., & Fahlevi, M. (2023). Do Tourism and Renewable Energy Influence CO2 Emissions in Tourism-Dependent Countries? *International Journal of Energy Economics and Policy*, 13(6), Article 6. https://doi.org/10.32479/ijeep.14410
- Lind, D. A., Marchal, W. G., & Wathen, S. A. (2018). *Statistical Techniques in Business & Economics* (17th ed., p. 897). McGraw Hill Education.
- Meiryani, Fahlevi, M., Rivalldo, K., Ariefianto, M. D., Winoto, A., Wahyuningtias, D., & Syamil, A. (2023). Corporate governance and return on assets in mining industry companies: The developing market study. *Corporate Governance and Organizational Behavior Review*, 7(4), 94. https://doi.org/10.22495/cgobrv7i4p8
- Meiryani, Huang, S. M., Soepriyanto, G., Jessica, Fahlevi, M., Grabowska, S., & Aljuaid, M. (2023). The effect of voluntary disclosure on financial performance: Empirical study on manufacturing industry in Indonesia. *PloS One*, *18*(6), e0285720. https://doi.org/10.1371/journal.pone.0285720
- Meiryani, M., Anggito Darmawan, M., Lusianah, L., Bramulya Ikhsan, R., & Juli Setiadi, N. (2021). The Effect of Fraud Detection and Prevention on Financial Performance Study on Trading Company. *ACM Int. Conf. Proc. Ser.*, 219–227. https://doi.org/10.1145/3494583.3494634
- Ringle, C. M., Sarstedt, M., Mitchell, R., & Gudergan, S. P. (2020). Partial least squares structural equation modeling in HRM research. *The International Journal of Human Resource Management*, 31(12), 1617–1643.
- Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research Methods for Business Students* (5th ed.). Prentice Hall.
- Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach*. John Wiley & Sons.
- Shah, S. H. A., Fahlevi, M., Jamshed, K., Aman, N., Rafiq, N., Jermsittiparsert, K., & Aljuaid, M. (2023). Sustaining the Earth: Unraveling the Synergy of Workplace Spirituality, Responsible Leadership, and Pro-Environmental Behavior in Pakistan's SMEs. *Psychology Research and Behavior Management*, 16, 3075–3093. https://doi.org/10.2147/PRBM.S413606
- Song, B., Chung, H., Kim, B.-J., & Sonu, C. H. (2023). Do business trainings for audit committees matter in organizations? Focusing on earnings management. *Finance Research Letters*, *51*, 103423. https://doi.org/10.1016/j.frl.2022.103423
- Watto, W. A., Fahlevi, M., Mehmood, S., Asdullah, M. A., & Juhandi, N. (2023). Executive compensation: A justified reward or a mis-fortune, an empirical analysis of banks in Pakistan. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(3), 100092. https://doi.org/10.1016/j.joitmc.2023.100092
- Yusuf, M., Dasawaty, E. S., Esra, M. A., Apriwenni, P., Meiden, C., & Fahlevi, M. (2024). Integrated reporting, corporate governance, and financial sustainability in Islamic banking. *Uncertain Supply Chain Management*, 12(1), 273–290. https://doi.org/10.5267/j.uscm.2023.9.022
- Yusuf, M., Hakim, L., Hendra, J., Kamar, K., Idawati, W., Winarso, E., Meiden, C., & Fahlevi, M. (2023). Blockchain technology for corporate governance and IT governance: A financial perspective. *International Journal of Data and Network Science*, 7(2), 927–932.

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