



Does the Sharia Supervisory Board Contribute to the Vousinas Model of Fraud Detection?

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ABSTRACT

This research examines the determinants of financial statement fraud in Islamic banks in Indonesia with multiple linear regression and moderated regression analysis (MRA). Based on data from 56 Islamic banks 2017–2020, this study investigates the influence of stimulus, ability, collusion, opportunity, rationalization, and ego on fraud with the moderating of Sharia Supervisory Boards (SSB). The results show that stimulus, rationalization and ego positively affect the financial statement fraud and capability, collusion and opportunity negatively affect the financial statement fraud. Furthermore, SSB substantially moderates the effect of collusion, opportunity, rationalization, and ego, hence validating its preventive role to curb fraudulent practices. The findings underscore the pivotal role of robust internal controls, ethical leadership, and sound governance in combating fraud in Islamic banking. The need to strengthen the oversight function of the SSB and enhance fraud detection mechanisms in the sector is critical to safeguarding the integrity of Islamic finance.

Keywords: vousinas model, financial statement fraud, sharia supervisory board, islamic bank.

INTRODUCTION

Financial statement fraud is a crucial problem occurring in several sectors such as Islamic banking in Indonesia.¹ Although financial statements are meant to transparently convey the financial position of the company, the pressure to present a good image generally results in manipulation through omission or misrepresentation of financial information.² Specifically, according to PSA No. 70, fraud in financial reporting is the intentional omission of amounts or disclosures from the financial statements with the intent to mislead the users of financial statements, which is consistent with the SAS No. 99 definition.³

¹ Arief Hidayatullah Khamainy, Mahrus Ali, and M. Arif Setiawan, "Detecting Financial Statement Fraud through New Fraud Diamond Model: The Case of Indonesia," *Journal of Financial Crime* 29, no. 3 (2022): 925–941.

² Mark Anthony Camilleri, "Theoretical Insights on Integrated Reporting: The Inclusion of Non-Financial Capitals in Corporate Disclosures," *Corporate Communications* 23, no. 4 (2018): 567–581.

³ Rocco R Vanasco, "Fraud Auditing," *Managerial Auditing Journal* 13, no. 1 (January 1, 1998): 4–71, <https://doi.org/10.1108/02686909810198724>; Jamie Pratt and James D Stice, "The Effects of Client Characteristics on Auditor Litigation Risk Judgments, Required Audit Evidence,

Increasingly sophisticated and heavily regulated, the world of financial reporting still provides opportunities for fraud.⁴ This problem is of particular importance in Islamic banks that manage public funds and must comply with Sharia, meaning these institutions require extensive scrutiny.⁵

The Association of Certified Fraud Examiners,⁶ revealed in their 2020 survey that 70% of fraud was engaged in corruption while entering financial fraud at 6.7%, which resulted in losses of IDR 2.26 trillion.⁷ Multiple fraud cases have further been recorded in both developed and developing nations. Cases of fraud in Islamic banks in the UAE,⁸ Malaysia, and Indonesia, such as corrupt act in Bank Jabar Banten Syariah (2017) and fictitious financing in Bank Syariah Mandiri (2018).⁹ Fraud financial reporting is not only limited to banking, but other sector such as the case of PT Garuda Indonesia Tbk (2018), PT Tiga Pilar Sejahtera Food (AISA),¹⁰ PT Asuransi Jiwasraya which has financial statement misstatement that gave a false healthy balance sheet impression¹¹. The growing

and Recommended Audit Fees," *The Accounting Review* 69, no. 4 (May 6, 1994): 639-656, <http://www.jstor.org/stable/248435>.

⁴ Ni Komang Astri Yulistiyawati, I Made Sadha Suardikha, and I Putu Sudana, "The Analysis of the Factor That Causes Fraudulent Financial Reporting with Fraud Diamond," *Jurnal Akuntansi & Auditing Indonesia* 23, no. 1 (2019): 1-10.

⁵ B. Schyns, B. M. Wisse, and S. Sanders, "Durham Research Online Woodlands," *Critical Studies on Security* 2, no. 2 (2014): 210-222.

⁶ ACFE, "Survei Fraud Indonesia 2019," *Survei Fraud Indonesia 2019* (2019), [Journal of Financial Crime \(2022\), <https://www.emerald.com/insight/content/doi/10.1108/JFC-07-2021-0163/full/html>.](https://scholar.google.com/scholar_lookup?title=Survei+Fraud+Indonesia+2019&author=Association+of+Certified+Fraud+Examiners+(ACFE)+Indonesia&publication_year=2020&journal=Indonesia+Chapter+%23111&volume=53&pages=1-76#d=gs_cit&t=1708359750082&u=%252Fscholar%25; Amit Mittal Shefali Saluja, Arun Aggarwal,)

⁷ Tarmizi Achmad, Imam Ghozali, and Imang Dapit Pamungkas, "Hexagon Fraud: Detection of Fraudulent Financial Reporting in State-Owned Enterprises Indonesia," *Economies* 10, no. 1 (2022): 1-16.

⁸ Mohammad Hassan Ali Abdulrahman et al., "European Journal of Management and Marketing Studies FORENSIC ACCOUNTING ON FRAUD DETECTION IN THE UAE BANKING SECTOR," *European Journal of Management and Marketing Studies* 5, no. 2 (2020): 14; Baker Akram Falah Jarah et al., "The Role of Internal Audit to Reduce the Effects of Creative Accounting on the Reliability of Financial Statements in the Jordanian Islamic Banks," *International Journal of Financial Studies* 10, no. 3 (2022).

⁹ Nurul Hidayati, "Ditemukan Pelanggaran Pada Audit Laporan Keuangan Garuda, Izin AP Kasner Sirumapea Dibekukan," *Kemenkeu.Go.Id*, last modified 2019, <https://pppk.kemenkeu.go.id/in/post/ditemukan-pelanggaran-pada-audit-laporan-keuangan-garuda-izin-ap-kasner-sirumapea-dibekukan>; Sucipto Sucipto et al., "Legitimacy Problems in Sharia Compliance Due to Fraud at Islamic Banks in Indonesia" (2022).

¹⁰ Samuel Gevanry Sagala and Valentine Siagian, "Pengaruh Fraud Hexagon Model Terhadap Fraudulent," *Jurnal akuntansi* 13, no. 2 (2021): 245-259, <http://journal.maranatha.edu>.

¹¹ Tarmizi Achmad et al., "Detecting Fraudulent Financial Reporting Using the Fraud Hexagon Model: Evidence from the Banking Sector in Indonesia," *Economies* 11, no. 1 (2023); Yudho Winarto, "Lemahnya Pengawasan OJK Jadi Biang Kasus Jiwasraya,"

occurrence of financial fraud across industries highlights the importance of strict supervisory mechanisms.¹²

One such data-driven fraud model is the *Vousinas Fraud Hexagon Model* which incorporates fraud determinants including stimulus, opportunity, capability, collusion, ego and external influence.¹³ Although the influence of these factors has been studied individually, the effects of corporate governance mechanisms, specifically Islamic banks, have not been fully addressed. Agency theory points to potential conflicts of interest between management and the owners of capital that increase the likelihood of information asymmetry and financial misreporting.¹⁴ Islamic banks who operate based on ethical and religious principles are not free from these risks.¹⁵

Prior research provides mixed result on determinants of financial statement fraud. Several studies have identified stimulus, opportunity, and rationalization factors¹⁶ and others emphasized aspects of external governance, like board expertise and regulatory cooperation, to mitigate the fraud risk.¹⁷ Many studies examine direct relationships rather than incorporating potential moderating variables. Sharia Supervisory Board (SSB) is an essential governance structure in Islamic banks to assure compliance with Sharia.¹⁸ Previous studies

Keuangan.Kontan.Co.Id, last modified 2020, <https://keuangan.kontan.co.id/news/indef-lemahnya-pengawasan-ojk-jadi-biang-kasus-jiwaseraya?page=2>.

¹² Abul Hassan, M. Sadiq Sohail, and Md Mahfuzur Rahaman Munshi, "Sharī'ah Governance and Agency Dynamics of Islamic Banking Operations in the Kingdom of Saudi Arabia," *ISRA International Journal of Islamic Finance* 14, no. 1 (2022): 89–106.

¹³ Georgios L. Vousinas, "Advancing Theory of Fraud: The S.C.O.R.E. Model," *Journal of Financial Crime* 26, no. 1 (2019): 372–381.

¹⁴ William H. Meckling Michael C. Jensen, "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure," *Journal of Financial Economics* 3, no. 4 (1976): 1671–1696, <https://www.sciencedirect.com/science/article/pii/0304405X7690026X>; Paulina Roszkowska, "Fintech in Financial Reporting and Audit for Fraud Prevention and Safeguarding Equity Investments," *Journal of Accounting & Organizational Change* (2021), <https://www.emerald.com/insight/content/doi/10.1108/JAOC-09-2019-0098/full/html>.

¹⁵ Kwang Jing Yii Mohd Haniff Zainulidin, Tze Kiat Lui, "Principal-Agent Relationship Issues in Islamic Banks: A View of Islamic Ethical System," *International Journal of Islamic and Middle Eastern Finance and Management* (2018), <https://www.emerald.com/insight/content/doi/10.1108/IMEFM-08-2017-0212/full/html>.

¹⁶ Hamid Vakilzadeh, "Copyright by Oluwatobi Olamiposi Oke 2022 All Rights Reserved," *The University of Wisconsin -- Whitewater*, 2022; Andrew Andrew, Candy Candy, and Robin Robin, "Detecting Fraudulent of Financial Statements Using Fraud S.C.O.R.E Model and Financial Distress," *International Journal of Economics, Business and Accounting Research (IJEBAR)* 6, no. 1 (2022): 696.

¹⁷ Erni Suryandari Fathmaningrum and Gupita Anggarani, "Fraud Pentagon and Fraudulent Financial Reporting: Evidence from Manufacturing Companies in Indonesia and Malaysia," *Journal of Accounting and Investment* 22, no. 3 (2021): 625–646;

Natasya Octaviana, "Analisis Elemen-Elemen Fraud Hexagon Theory Sebagai Determinan Fraudulent Financial Reporting," *Jurnal Akuntansi* 11, no. 2 (2022): 106–121.

¹⁸ Rita Wijayanti and Doddy Setiawan, "Social Reporting by Islamic Banks: The Role of Sharia Supervisory Board and the Effect on Firm Performance," *Sustainability (Switzerland)* 14, no. 17 (2022): 1–25.

indicate that SSB tenure is not a significant factor in preventing fraud¹⁹ but SSB expertise and educational background have a substantial effect on financial performance and fraud reduction.^{20,21,22}

The Sharia Supervisory Board (SSB)'s moderating role in the Vousinas Model of fraud detection is not well understood, despite the extensive literature on fraud detection models. Although earlier studies have explored individual determinants of fraud, scant attention has been paid to whether the mechanisms of Sharia governance work with, or against, fraud risk factors in the universe of Islamic banks.^{23,24} It is worth noting that, until now, most of the prior studies have particularly examined how conventional corporate governance mechanisms can reduce financial fraud, whereas the significance of SSB in Islamic financial institutions is yet to be explored.²⁵ In this study, the author is trying to fill this research gap by assessing the effectiveness of the *Vousinas Model* in detecting financial statement fraud in Islamic banks with SSB as a moderating variable. In contrast to previous research that focuses largely on the traditional fraud viewpoint,^{26,27} this study makes a fresh addition by underlining SSB's unique purpose in Islamic financial fraud detection. By incorporating SSB as a moderating variable, the study also contributes to the literature by examining the intersection of fraud detection models and Islamic governance

¹⁹ Asma Zeddini Ines Kateb, Olfa Nafti, "How to Improve the Financial Performance of Islamic Banks in the MENA Region? A Shariah Governance Perspective," *International Journal of Emerging Markets* (2023), <https://www.emerald.com/insight/content/doi/10.1108/IJOEM-03-2023-0434/full/html>.

²⁰ Lila Afiska, Dian Fitria Handayani, and Vanica Serly, "Pengaruh Karakteristik Dewan Pengawas Syariah (DPS) Terhadap Kinerja Keuangan Bank Umum Syariah Yang Terdaftar Pada Otoritas Jasa Keuangan (OJK) Indonesia," *Jurnal Eksplorasi Akuntansi* 3, no. 4 (2021): 784–798.

²¹ Heni Agustina et al., "The Role of Corporate Governance in Earnings Persistence: Audit Committee as a Moderation Variable," *Accounting* 7, no. 7 (2021): 1779–1784.

²² Krisna Dewi and Indah Anisykurlillah, "Analysis of the Effect of Fraud Pentagon Factors on Fraudulent Financial Statement with Audit Committee as Moderating Variable," *Accounting Analysis Journal* 10, no. 1 (2021): 39–46.

²³ Chaudhry Ghafran, Noel O'Sullivan, and Sofia Yasmin, "When Does Audit Committee Busyness Influence Earnings Management in the UK? Evidence on the Role of the Financial Crisis and Company Size," *Journal of International Accounting, Auditing and Taxation* 47 (2022): 100467, <https://www.sciencedirect.com/science/article/pii/S1061951822000222>.

²⁴ Ahmad Ali Jan et al., "Integrating Sustainability Practices into Islamic Corporate Governance for Sustainable Firm Performance: From the Lens of Agency and Stakeholder Theories," *Quality & Quantity* 56, no. 5 (2022): 2989–3012, <https://doi.org/10.1007/s11135-021-01261-0>.

²⁵ Ibid.

²⁶ Aisha Abdallah, Mohd Aizaini Maarof, and Anazida Zainal, "Fraud Detection System: A Survey," *Journal of Network and Computer Applications* 68 (2016): 90–113.

²⁷ Waleed Hilal, S Andrew Gadsden, and John Yawney, "Financial Fraud: A Review of Anomaly Detection Techniques and Recent Advances," *Expert Systems with Applications* 193 (2022): 116429, <https://www.sciencedirect.com/science/article/pii/S0957417421017164>.

frameworks,^{28,29} providing empirical evidence of the role of SSB expertise and independence in mitigating fraud risk,^{30,31} along with practical recommendations for regulators and policymakers in strengthening governance frameworks of Islamic financial institutions.^{32,33}

This study aims to empirically test and analyze the use of the Vousinas Fraud Hexagon Model to detect fraudulent financial statements, by including an SSB moderating variable. This, in turn, is expected to advance the theory of fraud prevention in Sharia-compliant financial institutions and contribute to future governance policies.

METHODS

This quantitative study aims to assess the moderating role of the Shariah Supervisory Board (SSB) in the identification of financial statement fraud of Islamic banks in Indonesia. Hexagon Fraud Model and an additional data retrieval from the Bank Umum Syariah (BUS) reports (2017-2020).³⁴ Data are collected using a quantitative approach, which is chosen to describe the research variables quantitatively and then empirically test the developed hypotheses related to fraud risk factors in Islamic banking. Research conducted previously indicates that the problem of fraudulent financial reporting in Islamic banks is a growing concern due to weaknesses in their governance and compliance mechanisms.³⁵ SSB has a crucial role in reducing fraud risk, ensuring compliance with Shari'a, and improving corporate governance mechanisms.³⁶ The sampling technique used for data collection is a purposive sampling technique explained by the 56 Islamic commercial banks registered at the Financial Services Authority

²⁸ Saed Ahmed Sulub, Zalailah Salleh, and Hafiza Aishah Hashim, "Corporate Governance, SSB Strength and the Use of Internal Audit Function by Islamic Banks," *Journal of Islamic Accounting and Business Research* 11, no. 1 (January 1, 2020): 152-167, <https://doi.org/10.1108/JIABR-12-2016-0148>.

²⁹ Assem Safieddine, "Islamic Financial Institutions and Corporate Governance: New Insights for Agency Theory," *Corporate Governance: An International Review* 17, no. 2 (March 1, 2009): 142-158, <https://doi.org/10.1111/j.1467-8683.2009.00729.x>.

³⁰ Souhir Neifar and Anis Jarboui, "Corporate Governance and Operational Risk Voluntary Disclosure: Evidence from Islamic Banks," *Research in International Business and Finance* 46 (2018): 43-54, <https://www.sciencedirect.com/science/article/pii/S0275531917300995>.

³¹ Ahmed A Elamer et al., "The Impact of Multi-Layer Governance on Bank Risk Disclosure in Emerging Markets: The Case of Middle East and North Africa," *Accounting Forum* 43, no. 2 (April 3, 2019): 246-281, <https://doi.org/10.1080/01559982.2019.1576577>.

³² Ibid.

³³ A. Syathir Sofyan, Salmah Said, and Muhammad Wahyuddin Abdullah, "Financing Risk Measurement With Maqashid Al-Sharia Qualitative Risk," *Share: Jurnal Ekonomi dan Keuangan Islam* 8, no. 1 (2019): 1-30.

³⁴ Vousinas, "Advancing Theory of Fraud: The S.C.O.R.E. Model."

³⁵ Neifar, Salhi, and Jarboui, "The Moderating Role of Shariah Supervisory Board on the Relationship between Board Effectiveness, Operational Risk Transparency and Bank Performance."

³⁶ Afiska, Handayani, and Serly, "Pengaruh Karakteristik Dewan Pengawas Syariah (DPS) Terhadap Kinerja Keuangan Bank Umum Syariah Yang Terdaftar Pada Otoritas Jasa Keuangan (OJK) Indonesia."

(OJK). Yet only 14 banks published and complied with financial reports research criteria specifications between 2017 and 2020. Despite being a more complete fraud detection than alternative models capable of only identifying earnings management but not fraudulent behavior such as the Beneish M-Score models like the F-Score *Dechow*³⁷ are the most common for evaluating financial statement manipulation.^{38,39}

RESULT AND DISCUSSION

Results of Descriptive Statistical

Table 1. Results of Descriptive Statistical Analysis

Var	N	Minimum	Maximum	Mean	Std Deviation
Fraud	56	-0.1140	6.3290	1.0709	0.9311
Stimulus	56	-0.9270	0.5030	0.0662	0.1852
Capability	56	0.0000	1.0000	0.5179	0.5042
Collusion	56	0.0000	1.0000	0.6964	0.4640
Opportunity	56	-19.4450	19.7000	-0.4709	4.1647
Rationalization	56	-0.4680	0.3480	-0.0245	0.1066
Ego	56	0.0000	1.0000	0.8929	0.3121
SSB	56	0.7000	1.0000	0.8714	0.0868
Sti_SSB	56	-0.8300	0.4500	0.0574	0.1631
Cap_SSB	56	0.0000	1.0000	0.4554	0.4476
Col_SSB	56	0.0000	1.0000	0.6179	0.4174
Op_SSB	56	-17.5000	13.7900	-0.4799	3.4198
Rat_SSB	56	-0.4200	0.3100	-0.0227	0.0939
Ego_SSB	56	0.0000	1.0000	0.7875	0.2854

Source; Author's processed data;

Descriptions;

The following is an interpretation of the descriptive statistical test results for each variable in the study:

The findings of the descriptive statistical evaluation for each of the study's variables are displayed in the table's explanation. There are 14 factors recorded in this table. Each variable includes the number of reports (N), minimum and maximum values, average (mean), and standard deviation.

³⁷ Patricia M. Dechow et al., "Predicting Material Accounting Misstatements," *Contemporary Accounting Research* 28, no. 1 (2011): 17-82.

³⁸ Muhammad Fauzan Zakiy, "PERSPECTIVE OF CROWE'S FRAUD PENTAGON IN DETECTING FRAUDULENT FINANCIAL STATEMENT," *International Journal of Economics, Business and Accounting Research* 2022, no. 4 (2022): 2314-2329.

³⁹ Messod D Beneish, "The Detection of Earnings Manipulation," *Financial Analysts Journal* 55, no. 5 (September 1, 1999): 24-36, <https://doi.org/10.2469/faj.v55.n5.2296>.

The Fraud variable has a lowest value of -0.1140, a highest value of 6.3290, an average of 1.0709, and a standard deviation of 0.9311. The other factors also exhibit comparable data. The average value of the stimulus variable is 0.0662, the average value of capability is 0.5179, the average value of collusion is 0.6964, the average value of opportunity is -0.4709, the average value of rationalization is -0.0245, and the average value of ego is 0.8929.

Moreover, some variables conclude with "_SSB", which could indicate variables that have undergone additional processing. These variables consist of SSB, Sti_SSB, Cap_SSB, Col_SSB, Op_SSB, Rat_SSB, and Ego_SSB. The data distribution for each of these factors is also reflected in its statistics.

This detailed statistical analysis gives a summary of how each variable is distributed and its features within the research sample. This information can serve as a foundation for additional investigation. Thus, the results of the descriptive analysis provide a comprehensive description of the condition of the banks studied as well as the influence of the moderating variable of the Sharia Supervisory Board on the independent variables.

(a) *Multiple Linear Regression and RMA Tests;*

Table 2: Test Results of Equations 1 and 2

Multiple Linear Regression				Moderated Regression Analysis		
Variables	Beta	t	Sig	Beta	t	Sig
Konstanta	2.547	2.956	0.005	-3.831	-1.296	0.202
Stimulus	0.973	1.465	0.150	17.251	1.792	0.08
Capability	-0.148	-0.889	0.378	-1.165	-0.909	0.369
Collusion	-0.022	-0.099	0.921	-8.257	-2.375	0.022
Opportunity	-0.182	-8.826	0,000	0.323	1.533	0.133
Rationalization	0.814	0.755	0.454	39.071	2.878	0.006
Ego	0.428	1.342	0.186	13.796	3.005	0.004
STI_SSB				-17.405	-1.618	0.113
CAP_SSB				1.338	0.932	0.357
COL_SSB				9.149	2.349	0.024
OP_SSB				-0.653	-2.724	0.009
RAT_SSB				-42.643	-2.782	0.008
EGO_SSB				-15.419	-2.953	0.005

Source; Author's processed data

DISCUSSION

These findings shed light on the reasons behind financial statement fraud in Islamic business firms; after all, companies implementing Islamic values in finance are subject to the same management control problems as conventional firms. The results showed that three factors: pressure from the need for money financial pressure, opportunity (the ability to cover up the fraud), and rationalization the process of reconciling action with values are important to determine if the fraud can be committed or not. Moreover, it is also discovered

that the moderation role of Sharia Supervisory Board (SSB) can significantly reduce financial fraud.^{40,41} We add to the literature by combining fraud theories with Islamic mechanisms of corporate governance.

The findings from the multiple linear regression analysis indicate that the intercept value is 2.547. This indicates that the degree of financial statement fraud (Fraud) will rise by 2.547 if all variables in the ⁴² model are taken to be zero.

Stimulus on Financial Statement Fraud

The positive path coefficient from financial pressure to equity result is not statistically significant ($\beta = 0.973$, $p = 0.150$), indicating that equity result does not stimulate financial statement fraud, implying that pressure fails to directly induce fraudulent practice. This finding is consistent with the fraud triangle theory Cressey, 1953 which describes that fraud is more likely to occur when financial pressure, opportunity and rationalization coexist ⁴³. Without these and without opportunity or justification, financial distress, irrespective of its magnitude, may not induce fraudulent behavior. Moreover, the fraud diamond theory developed takes this further by including capability as a potential contributing factor to fraud, noting that fraud is unlikely to be perpetrated in a financially pressuring environment without the relevant skills and power. ⁴⁴ Indeed, empirical studies back this perspective, arguing that the presence of good governance, ethical leadership, and robust internal controls appears to diminish proclivity to offer fraudulent financial statements regardless of surrounding pressure on finances.^{45,46} In addition, institutional theory has further pointed towards the role of organizational norms and regulatory frameworks on managerial behavior, orientating the understanding of fraud to be a function of wider institutional and cultural dynamics, rather than financial stimulus alone. As such, the direct causal link between stimulus and financial statement fraud is absent, highlighting the need to study fraud in its entirety as

⁴⁰ Mushtaq Hussain Khan et al., "Impact of Corruption on Bank Soundness: The Moderating Impact of Shari'ah Supervision," *Journal of Financial Crime* 29, no. 3 (January 1, 2022): 962–983, <https://doi.org/10.1108/JFC-03-2021-0063>.

⁴¹ Randi Swandaru and Aishath Muneeza, "Can Fraud in Islamic Financial Institutions Be Prevented Using High Standards of Shariah Governance?," *International Journal of Law and Management* 64, no. 6 (January 1, 2022): 469–485, <https://doi.org/10.1108/IJLMA-07-2022-0162>.

⁴² Vousinas (2019)

⁴³ Donald R Cressey, "Why Managers Commit Fraud," *Journal of Criminology* (1986), <https://journals.sagepub.com/doi/abs/10.1177/000486588601900402?journalCode=anja>.

⁴⁴ Douglas M Boyle, F Todd DeZoort, and Dana R Hermanson, "The Effect of Alternative Fraud Model Use on Auditors' Fraud Risk Judgments," *Journal of Accounting and Public Policy* 34, no. 6 (2015): 578–596, <https://www.sciencedirect.com/science/article/pii/S0278425415000472>.

⁴⁵ Vasant Raval, "A Disposition-Based Fraud Model: Theoretical Integration and Research Agenda," *Journal of Business Ethics* 150, no. 3 (2018): 741–763, <https://doi.org/10.1007/s10551-016-3199-2>.

⁴⁶ Lloyd C Harris, "Fraudulent Return Proclivity: An Empirical Analysis," *Journal of Retailing* 84, no. 4 (2008): 461–476, <https://www.sciencedirect.com/science/article/pii/S0022435908000705>.

a complex construct rooted in personal, organizational, and environmental contexts.

Capability on Financial Statement Fraud

The regression results show that capability has no significant effect on financial statement fraud ($\beta = -0.148$, $p = 0.378$). This result challenges fraud diamond theory, which suggests that powerful individuals are more likely to commit fraud due to their capabilities such as financial expertise and positional authority.⁴⁷ Such a finding contradicts previous studies claiming that executives, who have been embedded for a long time in the company and possess deep knowledge of its accounting regulations and internal controls, can use loopholes to manipulate financial reports.^{48,49} In this regard, the insignificant finding in this study could refer to the influence of corporate governance mechanisms that are more prevalent in Sharia-based firms, as ethical and regulatory frameworks play a part in stricter monitoring and limiting opportunity for manipulation behavior.^{50,51} Moreover, by highlighting the role of formal controls and ethical values in organizations shaping managerial behavior and curbing fraudulent behavior,⁵² institutional theory provides further support to this idea. Moreover, the relationship is consistent with the fraud deterrence perspective that highlights the importance of robust governance frameworks as well as independent audit and strong internal control systems, which can protect against the abuse of capability for fraudulent ends.^{53,54} So while capability might increase our ability

⁴⁷ Boyle, DeZoort, and Hermanson, "The Effect of Alternative Fraud Model Use on Auditors' Fraud Risk Judgments."

⁴⁸ Vikas Anand, M. Tina Dacin, and Pamela R. Murphy, "The Continued Need for Diversity in Fraud Research," *Journal of Business Ethics* 131, no. 4 (2015): 751–755, <http://dx.doi.org/10.1007/s10551-014-2494-z>.

⁴⁹ Christopher S Armstrong, Wayne R Guay, and Joseph P Weber, "The Role of Information and Financial Reporting in Corporate Governance and Debt Contracting," *Journal of Accounting and Economics* 50, no. 2 (2010): 179–234, <https://www.sciencedirect.com/science/article/pii/S0165410110000418>.

⁵⁰ GEERT J A N VAN GELDER, "KATHRYN KUENY, The Rhetoric of Sobriety: Wine in Early Islam (Albany: State University of New York Press, 2001). Pp. 198. \$57.50 Cloth, \$18.95 Paper.," *International Journal of Middle East Studies* 34, no. 4 (2002): 773–775, <https://www.cambridge.org/core/product/13032F3C19E3108C55D1933740435C76>.

⁵¹ Redhwan Ahmed AL-Dhamari, Ku Nor Izah Ku Ismail, and Bakr Ali Al-Gamrh, "Board Diversity and Corporate Payout Policy: Do Free Cash Flow and Ownership Concentration Matter?," *Corporate Ownership and Control* 14, no. 1Continued2 (2016): 373–383.

⁵² Paul DiMaggio and Walter W. Powell, "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields (Translated by G. Yudin)," *Journal of Economic Sociology* 11, no. 1 (2010): 34–56.

⁵³ Kamil Omoteso and Musa Obalola, "The Role of Auditing in the Management of Corporate Fraud," in *Ethics, Governance and Corporate Crime: Challenges and Consequences*, vol. 6, Developments in Corporate Governance and Responsibility (Emerald Group Publishing Limited, 2014), 129–151, <https://doi.org/10.1108/S2043-052320140000006006>.

⁵⁴ Waymond Rodgers, Arne Söderbom, and Andrés Guiral, "Corporate Social Responsibility Enhanced Control Systems Reducing the Likelihood of Fraud," *Journal of Business Ethics* 131, no. 4 (2015): 871–882, <https://doi.org/10.1007/s10551-014-2152-5>.

to commit fraud in theory, its effect is probably mitigated by the strength of the organizational governance and regulatory compliance.

Collusion and its Impact on Financial Statement Fraud

In the moderated model, Table 2 shows that collusion has a negative and significant impact on financial statement fraud ($\beta = -8.257$, $p = 0.022$), indicating that stronger internal controls and an ethical climate can suppress fraud in collusion. This finding is in contrast to the traditional view that collusion facilitates fraud through circumventing internal control mechanisms⁵⁵. However, agency theory *Jensen & Meckling* does support that effective monitoring and governance structures can help mitigate collusions-driven fraud, especially in those firms that highlight transparency and accountability. Moreover, according to institutional theory *DiMaggio*,⁵⁶ organizations with strict ethical and regulatory context, such as Sharia-compliant firms, promote culture in which employees are less susceptible to collude fraudulently due to their religious and ethical expectations.^{57,58} Fraud deterrence models suggest the importance of ethical leadership and corporate integrity in decreasing fraudulent behaviours; those working in off-culture firms are less likely to rationalise misconduct. So, while collusion is typically discussed in the context of fraud facilitation, these results suggest that ethics governance, cultural influences, and internal controls can greatly influence whether employees choose to engage in fraudulent behavior.

Opportunity Affects Financial Statement Fraud

Although opportunity can be expected as a driving factor of fraudulent behavior⁵⁹, the results of the regression challenge this theory: showing that it acts as a significant negative factor on financial statement fraud ($\beta = -0.182$, $p < 0.001$). A reasonable interpretation of this contradiction is linked to rigorous corporate governance mechanisms, particularly in Sharia-compliant organisations, which preclude financial malpractice from occurring because of imposed enhanced parameters of supervision, ethical review, and legal constraints limiting conduct

⁵⁵ Nobuhiro Suematsu et al., "Factor- α - Induced Mitochondrial DNA Damage and Dysfunction in Cardiac Myocytes" (2003): 1418-1423.

⁵⁶ DiMaggio and Powell, "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields (Translated by G. Yudin)."

⁵⁷ Wael Hemrit and Ines Belgacem, "What Are the Key Drivers of Fraud Reporting in Takaful Insurance? Evidence from Count Data Models," *Journal of Financial Reporting and Accounting* ahead-of-p, no. ahead-of-print (January 1, 2024), <https://doi.org/10.1108/JFRA-10-2023-0632>.

⁵⁸ Ahmad Bello Dogarawa, "Hisbah and the Promotion of Ethical Business Practices," *International Journal of Islamic and Middle Eastern Finance and Management* 6, no. 1 (January 1, 2013): 51-63, <https://doi.org/10.1108/17538391311310743>.

⁵⁹ David T Wolfe and Dana R Hermanson, "The FWolfe, D. T. and Hermanson, D. R. (2004) 'The Fraud Diamond: Considering the Four Elements of Fraud: Certified Public Accountant', *The CPA Journal*, 74(12), Pp. 38-42. Doi: DOI:Raud Diamond : Considering the Four ElemWolfe, D. T. and Hermanson, D. R.," *The CPA Journal* 74, no. 12 (2004): 38-42.

around financial impropriety⁶⁰. This result is consistent with institutional theory DiMaggio which suggests that firms operating under strong regulatory and ethical systems experience normative pressure to refrain from fraudulent behavior.⁶¹ Moreover, existing literature on deterrence of fraud confirms that internal controls, independent audits, and transparent reporting cells significantly reduce the possibility of fraud by increasing detection risks and responsibility measures.⁶² Therefore, while opportunity is generally seen as one of the characteristics that drive fraud, findings suggest that governance frameworks and ethical compliance system has a positive impact on minimizing self-enrichment opportunities thereby reinforcing the importance of regulation enforcement in fraud prevention.

Rationalization and Financial Statement Fraud

The regression results displayed that rationalization significantly influences the detection of financial statement frauds ($\beta = 39.071$, $p = 0.006$), reaffirming the effect of cognitive justifications in enabling an unethical behavior. This result is consistent with the fraud triangle theory that individuals rationalize their fraudulent behavior as a means to limit financial pressure or for organizational purpose.^{63,64} It has been suggested that a significant part of rationalization happens via self-serving biases, where perpetrators believe that they are doing what is better for society or a temporary measure. According to institutional theory DiMaggio,⁶⁵ also advocated that organizational norms and cultural expectations among peers influence ethical perceptions, which foster the use of fraud in some companies. Yet, ethical decision-making domain shifts, salient in Sharia-compliant firms, emphasize moral accountability and social responsibility, so as to mitigate rationalization and ensure it does not escalate, devolving into fraudulent acts.^{66,67} While the literature on fraud deterrence

⁶⁰ Procedia Economics et al., "No 主観的健康感を中心とした在宅高齢者における健康関連指標に関する共分散構造分析Title," *Corporate Governance (Bingley)* 10, no. 1 (2020): 54–75.

⁶¹ DiMaggio and Powell, "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields (Translated by G. Yudin)."

⁶² Dennis Brown et al., "Reducing Fraud in Organizations through Information Security Policy Compliance: An Information Security Controls Perspective," *Computers & Security* 144 (2024): 103958, <https://www.sciencedirect.com/science/article/pii/S0167404824002633>.

⁶³ Boyle, DeZoort, and Hermanson, "The Effect of Alternative Fraud Model Use on Auditors' Fraud Risk Judgments."

⁶⁴ Jin Liu and Bin Lin, "Government Auditing and Corruption Control: Evidence from China's Provincial Panel Data," *China Journal of Accounting Research* 5, no. 2 (2012): 163–186, <https://www.sciencedirect.com/science/article/pii/S1755309112000172>.

⁶⁵ DiMaggio and Powell, "The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields (Translated by G. Yudin)."

⁶⁶ Ridzuan Ahmad, Raemah Abdullah Hashim, and Ahmed Razman Abdul Latiff, "Ethical Behaviour and Integrity Among Employees in the Public Sector: A Critical Review," *International Journal of Entrepreneurship and Management Practices* 7, no. 25 (2024): 467–496.

⁶⁷ Soudabeh Vahdati and Niloofar Yasini, "Factors Affecting Internet Frauds in Private Sector: A Case Study in Cyberspace Surveillance and Scam Monitoring Agency of Iran,"

proposes the effect of ethical surveillance, zerotolerance policy, whistleblower hotlines, media coverage, groupthink, and mobilization of religious values of managers. As such, while rationalization plays an important role in financial statement fraud, mitigating impacts may vary with the organization's culture and ethical governance and regulatory compliance.

How Ego Plays a Part in Financial Statement Fraud

These regression results confirm that ego exerts a robust impact on financial statement fraud ($\beta = 13.796$, $p = 0.004$), since executives with strong self-interest motives are motivated to manipulate financial reports to facilitate self-gain, or improve their reputation. This finding is consistent with the upper echelons theory,⁶⁸ that suggests psychological traits of executives such as overconfidence and self importance can influence strategic decision-making, also including unethical financial practices.⁶⁹ Furthermore, agency theory posits that managerial self-interest may lead to conflict between managerial and shareholder interests,⁷⁰ making financial misreporting more likely in the absence of strong governance mechanisms. However, in the context of Islamic finance, where the themes of ethical leadership and moral accountability are pronounced, ego's effect towards fraud may be moderated by Sharia, which stimulates the values of transparency, integrity, and social responsibility⁷¹. Institutions structure these identities into the behaviors and choices of executives indicating that, when ethical governance is strong, leadership training robust, and regulation strictly enforced, the risks of ego-driven fraud can be diminished. Hence, through a strong ethical corporate culture paired with accountability measures, one can limit the amount of financial statement fraud influence by ego.

This study provides a significant global insight for the people in practice and academia who want to study and designed fraud prevention techniques and arguments, especially for Sharia-compliant practitioners. With the current trend of the world's financial markets toward corporate governance and transparency

Computers in Human Behavior 51 (2015): 180–187,
<https://www.sciencedirect.com/science/article/pii/S0747563215003532>.

⁶⁸ Donald C Hambrick and Phyllis A Mason, "Upper Echelons: The Organization as a Reflection of Its Top Managers," *Academy of Management Review* 9, no. 2 (April 1, 1984): 193–206, <https://doi.org/10.5465/amr.1984.4277628>.

⁶⁹ Jeffrey Cohen et al., "Corporate Fraud and Managers' Behavior: Evidence from the Press BT - Entrepreneurship, Governance and Ethics," ed. Robert Cressy, Douglas Cumming, and Christine Mallin (Dordrecht: Springer Netherlands, 2012), 271–315, https://doi.org/10.1007/978-94-007-2926-1_8.

⁷⁰ Sulaiman Mouselli and Khaled Hussainey, "Corporate Governance, Analyst Following and Firm Value," *Corporate Governance* 14, no. 4 (January 1, 2014): 453–466, <https://doi.org/10.1108/CG-03-2011-0093>.

⁷¹ Ismail Cebeci, "Integrating the Social Maslaha into Islamic Finance," ed. Kabir Hassan, *Accounting Research Journal* 25, no. 3 (January 1, 2012): 166–184, <https://doi.org/10.1108/10309611211290158>.

and ethical leadership, the SSBs can be a good model for organizations elsewhere. The positive impact of SSB on financial statement fraud confirms that Islamic governance mechanisms could serve as a best practice for firms operating in varied regulatory regimes. Its relevance on a global scale is further reflected in the burgeoning interest in ethical finance and sustainable business practices, with organisations across the spectrum striving to align their operations with CSR and ESG standards⁷².

In the broader context of the world, this study underlines the need for ethical oversight to lie at the heart of corporate governance frameworks with some rigorous vigilance over ethical misconduct as well, particularly in nations dealing with rampant financial fraud and corruption. Enhancing ethical climate through Sharia governance: Financial firms can use the Sharia governance framework to enhance their ethical climate and lower the risk of financial fraud in not only Islamic finance but also the financial services as a whole. Thus, the findings of this study elucidate how the SSB model can help reduce the chances of fraudulent behavior throughout the world; through moral accountability and regulatory compliance. In addition, the role of ethical leadership and internal controls as sheddings of light for fraud prevention is not limited to Islamic finance domain. The need for organizations around the world to enhance their governance frameworks is emphasized in this study against a recent backdrop of global corporate scandals. This is especially important in industries with high risks of financial misconduct such as banks, insurance companies, and investment firms. Such strong governance systems have importance globally as well in elevating investor confidence, financial stability and enhanced organization reputation which are very important features of a global financial system amid integration of financial system⁷³. Overall, this study provides a most instructive road map for how global and cross-sectored trans-contentions in reforming and refining the existing Sharia mechanisms to governance can serve not only Islamic finance – but also as a possible remedy to the ethical dilemmas everywhere in the world's growing financial markets. Implementing such frameworks globally is likely to greatly help encourage ethical behavior, increase corporate transparency, and deter financial fraud worldwide.

The moderator: Sharia Supervisory Board (SSB)

These findings provide insights into the extent to which the SSB is effective in reducing collusion, opportunity, rationalization, and ego, which lead to financial statement fraud. According to the *vousinas fraud pentagon model*

⁷² Ariadna Dumitrescu and Mohammed Zakriya, "Stakeholders and the Stock Price Crash Risk: What Matters in Corporate Social Performance?," *Journal of Corporate Finance* 67 (2021): 101871, <https://www.sciencedirect.com/science/article/pii/S0929119920303151>.

⁷³ Samreen Siddiqui, "Depression in Type 2 Diabetes Mellitus – A Brief Review," *Diabetes & Metabolic Syndrome: Clinical Research & Reviews* 8, no. 1 (2014): 62–65, <https://www.sciencedirect.com/science/article/pii/S1871402113000684>.

Vousinas,⁷⁴ that extends the classical fraud triangle “Cressey, 1953”,⁷⁵ and fraud diamond,⁷⁶ including pressures from organizational and institutional context that moulds fraudulent behavior. Strong moderating effect of SSB on collusion ($\beta = 9.149$, $p = 0.024$) shows that due to strict supervision collusion is less prevalent among managers, supporting agency theory (Jensen & Meckling, 1976), that governing mechanisms should be eminent enough that the managers will keep doing what other stakeholders expects them to do. Moreover, the negative moderating impacts on opportunity ($\beta = -0.653$, $p = 0.009$), rationalization ($\beta = -42.643$, $p = 0.008$), and ego ($\beta = -15.419$, $p = 0.005$) suggest that Islamic governance frameworks reduce not only the opportunities for fraud but also the mechanisms for self-justification and executive overconfidence, thereby engendering corporate integrity.^{77,78,79} These findings underscore the potency of the SSB in promoting a robust ethical climate, consistent with institutional theory, which posits that a firm functioning within an environment of regulation is susceptible to normative pressure that inhibits wrongdoing.

On the flip side, the non-significant moderating effects of stimulus ($\beta = -17.405$, $p = 0.113$) and capability ($\beta = 1.338$, $p = 0.357$) on the base model demonstrate the independent relationship between Sharia governance, financial pressures, and individuals' expertise, indicating potential constraints for anti-fraud strategies. This insight is in line with investigations into fraud resilience in Islamic banking, which suggest that the governance frameworks strengthen ethics practices but do not immediately impact economic pressures or management competency.^{80,81} This perspective indicates that despite the SSBs, the systemic nature of financial fraud risk means that it cannot be wholly

⁷⁴ Vousinas, “Advancing Theory of Fraud: The S.C.O.R.E. Model.”

⁷⁵ Donald R Cressey, “Why Managers Commit Fraud.”

⁷⁶ Wolfe and Hermanson, “The FWolfe, D. T. and Hermanson, D. R. (2004) ‘The Fraud Diamond : Considering the Four Elements of Fraud: Certified Public Accountant’, The CPA Journal, 74(12), Pp. 38–42. Doi: DOI:Raud Diamond : Considering the Four ElemWolfe, D. T. and Hermanson, D. R.”

⁷⁷ Ika Sari Wahyuni-TD, Hasnah Haron, and Yudi Fernando, “The Effects of Good Governance and Fraud Prevention on Performance of the Zakat Institutions in Indonesia: A Shari’ah Forensic Accounting Perspective,” *International Journal of Islamic and Middle Eastern Finance and Management* 14, no. 4 (January 1, 2021): 692–712, <https://doi.org/10.1108/IMEFM-03-2019-0089>.

⁷⁸ Maria Bhatti and M Ishaq Bhatti, “Toward Understanding Islamic Corporate Governance Issues in Islamic Finance,” *Asian Politics & Policy* 2, no. 1 (January 1, 2010): 25–38, <https://doi.org/10.1111/j.1943-0787.2009.01165.x>.

⁷⁹ Umair Riaz, Bruce Burton, and Anne Fearfull, “Emotional Propensities and the Contemporary Islamic Banking Industry,” *Critical Perspectives on Accounting* 94 (2023): 102449, <https://www.sciencedirect.com/science/article/pii/S104523542200034X>.

⁸⁰ Md. Kausar Alam et al., “The Influences of Shariah Governance Mechanisms on Islamic Banks Performance and Shariah Compliance Quality,” *Asian Journal of Accounting Research* 7, no. 1 (January 1, 2022): 2–16, <https://doi.org/10.1108/AJAR-11-2020-0112>.

⁸¹ Mosab I Tabash, Md. Kausar Alam, and Md. Mizanur Rahman, “Ethical Legitimacy of Islamic Banks and Shariah Governance: Evidence from Bangladesh,” *Journal of Public Affairs* 22, no. 2 (May 1, 2022): e2487, <https://doi.org/10.1002/pa.2487>.

eliminated due to its dependence on the control environment and thus financial literacy, whistleblower protections and realignment of systems incentives may also be considered. Further studies can include applying forensic accounting techniques and machine-learning-based fraud detection models in Islamic financial institutions, which can further fortify fraud prevention frameworks⁸². As a result, adopting improved detection techniques in governance frameworks essentially adds value to banks in terms of financial stability while also ensuring regulatory and ethical obligations.

The findings of this study provided essential implications for Islamic financial institutions at the global level. The Sharia Supervisory Board (SSB) has been proven effective in reducing fraud elements (e.g. collusion, opportunity, rationalization, ego), which can provide a governance model that can be adapted cross-jurisdiction. As the interest in ethical and sustainable finance continues to climb, we propose the inclusion of Sharia-based governance principles in traditional finance practices to help drive accountability and public trust across not just predominately Muslim nations but also emerging dual financial systems within Western economies. It could also be the case for countries, such as UK and Luxembourg, where Islamic banking is operational, that similar ethical oversight mechanisms integrated in the regulatory framework will be beneficial.⁸³ Furthermore, international bodies like the International Financial Services Board (IFSB) and Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) can also benefit from perspectives presented in this paper to structure cross-border standards in a manner that aligns Islamic principles with accepted norms across the international financial landscape. This convergence will enhance fraud resilience through transparent corporate governance structures and enhance its attractiveness to a wider range of social investing, which is vital to global financial stability and supporting inclusive economic growth⁸⁴. As a result, enhancing Islamic governance through the SSB has far-reaching implications internationally, furthering the alignment of ethical and effective practices in contemporary financial systems.

Implications and Future Research Directions

The significance of such findings is not only conceptually, but also in practical implications in arranging the governance of Islamic financial institutions. Encouraging the role of the Sharia Supervisory Board (SSB) in upholding ethical compliance and corporate accountability fits into the larger

⁸² Siti Handayani and Bambang Iman Waskito, "The Moderating Effect of Audit Committee on The Prevention of Financial Statement Fraud With Pentagon Fraud Analysis," *KASTA: Jurnal Ilmu Sosial, Agama, Budaya dan Terapan* 1, no. 1 (2021): 14–28.

⁸³ Amina Buallay, Richard Cummings, and Allam Hamdan, "Intellectual Capital Efficiency and Bank's Performance," *Pacific Accounting Review* 31, no. 4 (January 1, 2019): 672–694, <https://doi.org/10.1108/PAR-04-2019-0039>.

⁸⁴ Ahmed Hassanein and Hana Tharwat, "Corporate Social Responsibility: An Islamic Shari'ah-Compliant Perspective," in *The Emerald Handbook of Ethical Finance and Corporate Social Responsibility*, ed. Ahmed Imran Hunjra and Khaled Hussainey (Emerald Publishing Limited, 2024), 397–416, <https://doi.org/10.1108/978-1-80455-406-720241017>.

framework of Islamic financial regulation that is concerned with transparency, fairness, and risk-sharing⁸⁵. The findings indicate that from an accounting and auditing perspective, regulators should focus on enhancing their mechanisms for oversight by integrating forensic accounting techniques and real-time fraud detection systems. It would also be worthwhile exploring the role that behavioral auditing can play in evaluating managerial motivations and ethical conundrums, as some literature posits that the efficacy of governance is dependent upon an institution's ethical culture⁸⁶. The integration of artificial intelligence techniques, such as AI-driven risk assessment algorithms and machine learning-based anomaly detection methods, will enable Islamic banks to proactively detect fraudulent activities while ensuring adherence to Sharia principles⁸⁷.

Future studies can expand on this study by looking at the dynamics of fraud through qualitative methodologies, providing a more in-depth understanding of the decision-making rationale that informs such behavior. Deep interviews with executives, auditors, and compliance officers could provide insights into the psychological and organizational factors underlying fraud risk in firms that are Islamically compliant. Moreover, introducing graphical results (e.g., moderation plots, structural equation modeling) can aid in understanding regression outcomes and provide empirical contributions to the field⁸⁸. This could also help to better understand if and how specific regulatory environments impact grading the success of Islamic finance in reducing fraudulent behavior since this could be done through a cross-country comparison. Complementary incorporation of these approaches in future studies will provide a comprehensive understanding of financial fraud, informing better governance and regulatory frameworks.

CONCLUSION

Unique among prior studies, this research offers empirical support for the drivers of financial statement fraud in Sharia-compliant firms, suggesting that rationalization, ego, and opportunity play the most decisive roles while also revealing the counterintuitive, deleterious influence of collusion and opportunity. The Sharia Supervisory Board (SSB) plays a role in moderating the risks of fraud related to collusion, opportunity, rationalization, and ego, while its findings regarding the stimulus and capability are inconclusive. These findings highlight that regulators should continue to enhance governance

⁸⁵ Habiba Al-Shaer and Mahbub Zaman, "Board Gender Diversity and Sustainability Reporting Quality," *Journal of Contemporary Accounting and Economics* 12, no. 3 (2016): 210-222.

⁸⁶ Qili Wang et al., "Enhancing Intraday Stock Price Manipulation Detection by Leveraging Recurrent Neural Networks with Ensemble Learning," *Neurocomputing* 347 (2019): 46-58, <https://www.sciencedirect.com/science/article/pii/S0925231219303005>.

⁸⁷ Hilal, Gadsden, and Yawney, "Financial Fraud: A Review of Anomaly Detection Techniques and Recent Advances."

⁸⁸ James E Aikens et al., "Diabetes Self-Management Support Using MHealth and Enhanced Informal Caregiving," *Journal of diabetes and its complications* 28, no. 2 (2014): 171-176.

frameworks by strengthening the SSB oversight, developing more robust fraud detection mechanisms, and embedding behavioral fraud models specific to Islamic financial institutions. The demand for fraud detection models that incorporate Not only the formal rules set out by SSB but also accounting and forensic science approaches shows that proactive fraud detection has begun and we will extend this to measure the effectiveness of SSB and integrate machine learning in forensic accounting metrics for greater efficiency in inter-jurisdictional harmonization of SSB.

Author's Contribution

Annastasya Rizqi Arifia, conceptualization, methodology, data collection, writing the original draft.

Zulfikar took care of data analysis, validation, and manuscript review.

Banu Witono oversaw the study, offered critical feedback, and guaranteed the fit of the research where theoretical frameworks apply. All authors designed the study, read, and approved the final manuscript.

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Declaration of Competing Interest

The author declares that there is no conflict of interest.

Ethical Approval

Ethical approval No patient-identifying parts in this paper were used or known to the authors. Therefore, no ethical approval was requested.

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