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Transformation of the hexagon fraud model (S.C.C.O.R.E.L.L Model): moderated by social media as a whistleblowing system information channel

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A B S T R A C T

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This research investigates the impact of stimulus, capability, collusion, opportunity, rationalization, ego, lack of empathy, and spirituality on financial reporting fraud. This chapter also explores how social media can moderate these impacts as a channel for whistleblowing information. Based on balanced panel data with a sample of 441 research data, the research focuses on commercial banks registered with the Financial Services Authority, Indonesia, from 2016 to 2022. The research results reveal that opportunity has a negative influence on fraudulent financial reporting; lack of empathy also has a negative influence on fraudulent financial reporting; lack of spirituality has a positive influence on fraudulent financial reporting; social media as an information channel for the whistleblowing system weakens the influence of lack of spirituality on fraudulent financial reporting, and social media strengthens the influence of opportunity and lack of empathy on fraudulent financial reporting. This research not only aims to bridge the research gap regarding financial reporting that contains fraud (fraud theory) but also provides practical insights and recommendations for regulators, especially in monitoring financial reporting that contains fraud in the banking sector. Hence, these findings are very relevant and can be applied.

1. Introduction

Based on the 2024 Association of Certified Fraud Examiners (ACFE) study report, the banking and financial services industry is facing a pressing issue of fraudulent financial reporting schemes and corruption schemes, with an average loss per case of $120,000 from 305 cases (ACFE, 2024). Transparency International conveyed the results of a survey regarding Indonesia's Corruption Perception Index (IPK) in 2023, where the GPA decreased to 34 and was ranked 115th out of 180 countries involved in the survey. This highlights the urgent need to address fraudulent and corrupt practices currently hindered by stakeholders' lack of support (Transparency International, 2024). Incidents regarding scandals and cases of fraudulent financial reporting continue to occur. They are increasingly complex, both at the global level, like the cases of Enron, WorldCom, Adelphia, Tyco, Global Crossings, Danske Bank, Panama Papers, and FinCen Files, and at the local level, like the cases of Bank Lippo, Bank Bukopin, Jiwasraya Insurance, State Savings Bank, and Panin Bank. The increasingly dynamic and complex practice of financial report fraud requires immediate attention and analysis of the development of the fraud theory gap and a study of differences in previous research results (research gap) so that it is hoped that we can understand, identify, and mitigate the risks of current fraud practices. The development of fraud theory has been known since 1953 to 2019, namely The Fraud Triangle Model (Cressey, 1953), The Fraud Diamond Model (Wolfe & Hermanson, 2004), Crowe's Fraud Pentagon Model (Crowe, 2011), The Fraud Heptagon Model (Yusof, 2016), and The Fraud Hexagon (Vousinas, 2019). This research develops the fraud hexagon theory (Vousinas, 2019) by carrying out transformations and modifications to the variables that affect fraud. Vousinas (2019) explains that the SCCORE model, which consists of stimulus, capability, collusion, opportunity, rationalization, and ego, affects acts of fraud. In describing the ego variable, Vousinas (2019) uses psychoanalytic theory Freud (1923), in Vousinas, 2019). The ego is criminal behavior, a product of mental processes, and is dominated by the

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unconscious, which originates from oneself (Vousinas, 2019). The weakness of the ego variable, as explained by Vousinas (2019), is that it does not always affect fraud; it depends on the human's ability to control his ego (Alwisol, 2009a; Lacan, 1999b; Moore, 2017). Thus, it is necessary to develop additional variables in The Fraud Hexagon that encourage fraud by adding the variables of lack of empathy and lack of spirituality. This research has 8 (eight) variables in explaining the practice of financial reporting fraud: stimulus, capability, collusion, opportunity, rationalization, ego, lack of empathy, and lack of spirituality, also called the transformation of fraud hexagon (SCCORELL model). Empathy is the ability to feel the emotional situation of other people and want to help solve the problems faced by different people (Goleman, 2001a; Goleman & Boyatzis, 2017). Spirituality is placing behavior in a broader context of meaning to realize better life values (Ajala, 2013; Zohar & Marshall, 2004).

This research uses moderating variables following developments in information and communication technology, which have had the impact of strengthening transparency and openness processes which are expected to reduce fraudulent and corrupt practices in public institutions (Bertot et al., 2010), namely the use of social media as a channel for whistleblowing information (Guntik & Yustiawan, 2022). Arianto (2021) stated that it is time for entities, organizations, government agencies, and corporations to maximize using social media as a whistleblowing channel. His research concluded that social media could positively contribute as an alternative whistleblowing channel to detect fraudulent practices in all entities and the public sector. Furthermore, this research also conducted a study of differences in previous research results (Aviantara, 2021; Christian et al., 2019; Fitri et al., 2019; Lastanti, 2020; Ojilong Omukaga, 2020; Ozcelik, 2020; Pamungkas et al., 2018; Santoso, 2018; Sihombing & Rahardjo, 2014; Yusof, 2016). The control variables used in this research are profitability (measured by return on assets) and liquidity (measured by debt-to-equity ratio). The research sample data used is national public and private banking companies registered with the Financial Services Authority (OJK) covering 2016 to 2022. The general aim of this research is to analyze and find empirical evidence regarding the effect of stimulus, capability, collusion, opportunity, rationalization, ego, lack of empathy, and lack of spirituality toward fraudulent financial reporting, which is moderated by the use of social media as a whistleblowing system information channel. The general contribution or benefit of this research is for academic development in the form of developing a fraud theory model and providing benefits for companies, auditors, the Indonesian Accountants Association (IAI), OJK, and the Directorate General of Taxes (DJP) in detecting fraudulent financial reporting.

2. Literature review

2.1 Agency theory

Agency theory explains the cooperative relationship and unequal interests between shareholders as principals and management as agents (Jensen & Meckling, 1979). This condition allows managers to use the information they know to manipulate financial reports to maximize their interests (Scott & O'Brien, 1997). Agency theory uses three assumptions about human nature (Eisenhardt, 1989): generally prioritizing one's interests, having limited thinking power regarding future perceptions and always avoiding risks. Conflicts of interest in this research are triggered by stimulus, capability, collusion, opportunity, rationalization, ego, lack of empathy, and lack of spirituality, which leads to the practice of fraudulent financial reporting. Furthermore, with developments in information and communication technology, companies utilize social media as a whistleblowing information channel to support the agent's accountability role and convince the principal that the authority given has been carried out correctly.

2.2 Positive accounting theory

Positive accounting theory explains observed accounting phenomena based on the reasons that cause an event to occur. (Watts & Zimmerman, 1990) explain that positive accounting theory relates to the consequences of managers' choices with other parties, such as investors, creditors, auditors, and the government. Managers will tend to benefit themselves by playing with accounting numbers to manage profits so that bonus targets are met and reduce high political costs by paying taxes by choosing accounting methods or committing fraudulent practices. The manager's motivation aligns with agency problems and is related to the variables: stimulus, capability, collusion, opportunity, rationalization, ego, lack of empathy, and lack of spirituality.

2.3 Fraud theory

Albrecht et al. (2011) stated that fraud is deception, which consists of several essential elements, namely presentation, involving things that are material, false, done intentionally or carelessly, and believed to be done to the victim for the victim's loss. Wells (2011) stated that several modes of fraud in financial reports include falsification, alteration, or manipulation of financial records, supporting documents or business transactions, and deliberate omission of events, transactions, accounts, or other significant information. The development of fraud theory has been known since 1953 to 2019, namely The Fraud Triangle Model (Cressey, 1953), The Fraud Diamond Model (Wolfe & Hermanson, 2004), Crowe's Fraud Pentagon Model (Crowe, 2011), The Fraud Heptagon Model (Yusof, 2016), and The Fraud Hexagon (Vousinas, 2019). The variables contained in each fraud theory are used to detect fraudulent behavior and are constantly undergoing development because fraud modes and behavior are becoming more complex and aggressive.

2.4 Theory of Planned Behavior

The Theory of Planned Behavior (TPB) explains that individuals cannot control behavior theory but are also affected by non-motivational factors, which are considered opportunities for behavior to be carried out. (Ajzen, 1991) states that an individual's interest in carrying out a behavior is affected by three things, namely attitude, subjective norms, and behavioral control. (Carpenter & Reimers, 2005) developed the theory put forward (Ajzen, 1991) by stating that several factors cause individuals to be interested in committing fraud, namely attitudes or behavior, a person's views or feelings, and behavioral control. TPB explains how ethics will affect someone to commit fraudulent acts. This theory explains the factors influencing someone to commit fraudulent financial reporting, including lack of empathy and spirituality and using social media as a whistleblowing system information channel.

2.5 Attribution Theory

Attribution theory studies how a person interprets an event, reason, or cause of his or her behavior (Heider, 1958). Ikhsan and Ishak (2005) state that a combination of internal and external forces determines a person's behavior. According to Meacham and Morrison (2013), everyone will always discover why people do something. This theory explains the processes that occur within us so that we understand our behavior and that of others. Attribution theory states that when individuals observe someone's behavior, they try to determine whether it was caused internally or externally (Robbins & Judge, 2003). Attribution theory is closely related to the variables in this research: lack of empathy, lack of spirituality, and the use of social media as a whistleblowing system information channel.

2.6 Neuroscience Theory

The study of the brain is fundamental to understanding how we feel and interact with the outside world, especially what humans experience and how humans affect others (Cannon, 1927; Schneider, 2011). Recent neuroscience research has found evidence of an inseparable relationship between the brain and human behavior (character). Fraud is rooted in subjective perception. Neuroscientific studies show that the prefrontal area responsible for executive function processes also involves fraudulent behavior (Greene & Paxton, 2010). Neuroscientific theory can explain fraudulent behavior by involving social factors in measurement instruments to support excellent and correct processes by ethics, norms, and noble values, not just achieving results. The neuroscientific theory is the basis for developing fraudulent behavior and explaining the lack of empathy variable.

2.7 Emotional Intelligence Theory

Salovey and Mayer say that the ability to manage emotions is closely related to emotional intelligence (Goleman et al., 2015). Goleman (2001) explains that emotional intelligence is the ability to recognize the feelings of oneself and others to motivate oneself and manage emotions well within ourselves and in relationships with other people, which is divided into personal competencies (self-awareness, self-regulation, self-motivation) and social competence (empathy and social skills). Our choices are based on automatic mechanisms determined by emotions, whereas rationality is usually the explanation after we have made a decision. Goleman & Boyatzis (2017) explain that emotional intelligence is the ability to recognize one's feelings and the feelings of others, motivate oneself, and manage emotions well in oneself and relationships with others. According to Mader & Diane (1990), empathy is a person's ability to share feelings based on concern. Empathy is the ability to feel what other people feel, understand other people's perspectives, foster relationships of mutual trust, and adapt to various types of relationships. A person who lacks empathy will give birth to an attitude of ignorance, unawareness, and insensitivity to their environment, thereby encouraging acts of fraud.

2.8 Ethical Theory

According to Berten (2000), ethics is a set of moral values and norms that become the guidelines of a person or group in regulating their behavior. Allchin (1999) defines *ethics* as moral principles agreed upon by a community unit, guiding individual behavior in dealing with others in society. Unethical behavior in business activities often occurs because of opportunities provided by laws and regulations, which are then passed and misused in their implementation and used as a basis for actions that violate business ethics. Ethics has 3 (three) positions, namely: as a value system, a code of ethics, and moral philosophy (Berten, 2004). The ethical theory provides a basis for detecting fraudulent financial reports through the lack of spiritual variables.

2.9 Spirituality Intelligence Theory

Spiritual intelligence is the most rudimentary intelligence we use to develop capacities in terms of meaning, vision, and values, helping us realize our potential for a better and more satisfying life (Zohar & Marshall, 2004). Spirituality is closely related to creativity, love, forgiveness, compassion, trust, respect, wisdom, confidence, and unity (Dehaghi et al., 2012). People with healthy spiritual intelligence can be sure they carry out their profession well and have strong self-control by applicable regulations (Ardilia, 2022). Dehler and Welsh (2010) define *spirituality* in the workplace as a process of searching for the meaning of life and deepening knowledge to reach a higher level. Mitroff & Denton (1999) research found that spirituality is one of the most significant factors in organizational performance. Purnamasari and Amaliah (2015) explained that the variable spirituality in the workplace significantly strengthens the relationship between religiosity and fraud. Someone who has a lack of spiritual personality can encourage someone to commit fraudulent acts.

2.10 Whistleblowing System and Social Media

One of the internal control efforts to prevent fraudulent practices and strengthen the implementation of good governance practices is to implement a whistleblowing system. The National Committee for Governance Policy (KNKG) explains that an effective whistleblowing system can encourage whistleblowers to be more courageous in preventing fraud or violations by reporting them to parties who can handle them. An effective whistleblowing system can reduce the culture of "silence" towards a culture of "honesty and openness" (Governance, 2008). The implementation of the whistleblowing system is adjusted to each company's regulations, so this system will provide benefits and improve corporate governance (Shawver & Shawver, 2018). POJK Number 39/POJK.03/2019 concerning Implementation of Anti-Fraud Strategies for Commercial Banks regulates the obligation for banks to implement anti-fraud strategies and increase the effectiveness of implementing fraud control systems by focusing on disclosure of complaints (whistleblowing). The development of information and communication technology has had the impact of strengthening transparency and openness processes to reduce fraudulent practices (Bertot et al., 2010). Social media can be a channel for whistleblowing information because it is correlated as a method for uncovering fraudulent practices (Latan et al., 2020). Thus, using social media as a whistleblowing system information channel is necessary to create broader public participation in detecting fraudulent practices.

2.11 Fraud Hexagon Development into Fraud Hexagon Transformation

This research is a development of the fraud hexagon model (Vousinas, 2019). Vousinas (2019) uses psychoanalytic theory (Freud, 1923) in developing ego variables to detect fraudulent behavior so that it becomes hexagon fraud. Psychoanalytic theory believes that criminal behavior is the product of mental processes. One of the variables in hexagon fraud, namely the ego, is not the cause of fraudulent practices, depending on the human ability to control the ego or adapt to the surrounding conditions, as explained in the mirror stage (Lacan, 1999); psychosocial theory (Alwisol, 2009); behaviorism theory (Moore, 2017); and the moral landscape (Harris, 2011). In order to detect increasingly complex financial report fraud, hexagon fraud needs to be developed (Vousinas, 2019) by developing the hexagon fraud variables so that they are transformed into 8 (eight) variables, namely stimulus, capability, collusion, opportunity, rationalization, ego, lack of empathy, and lack of spirituality.

2.12 Hypothesis Development

The Effect of Stimulus on Fraudulent Financial Reporting

Cressey (1953) research explains that pressure is the motivation that triggers someone to commit fraud. Statement of Auditing Standards (SAS) No. 99 in Skousen et al (2009) explains that four conditions commonly occur under pressure that can result in fraud: financial stability, external pressure, financial target, and personal financial need. An assessment of a company's financial condition (financial stability) can be seen from the condition or stability of the company's assets. External pressure can be seen from the need for external financing related to cash generated from financing, including through debt. Financial targets are the risk of excessive pressure on management, for example, related to profitability. Personal financial needs play a significant role in the company, which can be seen in the management's ownership of company shares. Based on the description above, the research hypothesis is formulated as follows.

H_1: *Stimulus has a positive effect on fraudulent financial reporting.*

The Effect of Capability on Fraudulent Financial Reporting

Wolfe and Hermanson (2004) explain that changes in directors are a form of conflict of interest. Crowe (2011) explains that ability is an employee's skill to ignore internal controls, develop concealment strategies, and observe social conditions to fulfill his interests. Adams & Ferreira (2009) explain that female commissioners will increase the board's effectiveness in more intensive supervision of managers' actions. Female board directors have the same effect as independent directors. This is supported by research by Kusumastuti et al. (2008), which shows that women have a very high level of caution, tend to avoid risks, and are more thorough than men. Furthermore, previous research (Mudrack, 1989; Peterson et al., 2001; Sundaram & Yermack, 2007) explains that individuals become more ethical and conservative with increasing age or that CEOs with older age tend to avoid acts of accounting fraud. Gottesman & Morey (2010) and Altuwaijri & Kalyanaraman (2020) stated that the level of education possessed by a CEO will help in career advancement, where a person with higher education will know accounting and financial procedures so that they can provide good disclosures to shareholders: shares and the public. Based on the description above, the research hypothesis can be formulated as follows.

H_2: *Capability has a negative effect on fraudulent financial reporting.*

The Effect of Collusion on Fraudulent Financial Reporting

According to Vousinas (2019), collusion refers to an agreement that deceives a party into taking action with less than good intentions, such as defrauding a third party of the rights they have. Transactions with complicated related party transactions (RPT) are accompanied by high inherent risks due to management's high involvement in decision-making. The increasing complexity of transactions with privileged parties will give rise to the risk of material misstatement because they are susceptible to manipulation by management (Lou & Wang, 2009). Collusion can occur between employees within a company, groups of individuals in several companies, and between companies simultaneously (Vousinas, 2017). Collusive practices that occur in companies can be seen from the connections held by company officials and the concentration of ownership (Shleifer & Vishny, 1994). Collusion is proxied by political connections Faccio et al (2006) and state-owned enterprises referred to in (Gaio & Pinto, 2018). Based on the description above, the research hypothesis can be formulated as follows.

H$_3$: *Collusion has a positive effect on fraudulent financial reporting.*

The Effect of Opportunity on Fraudulent Financial Reporting

Cressey (1953) explains that opportunity is a condition or situation that allows someone to commit or cover up a dishonest act. The board of commissioners is essential in mitigating opportunities for fraudulent practices, especially in monitoring manager performance. The absence of independence from the commissioners results in the board of Commissioners' ineffective supervisory process. Therefore, the dimension of ineffective monitoring is proxied by the ratio of independent commissioners (Fitri et al., 2019; Ojilong Omukaga, 2020; Ozcelik, 2020; Santoso, 2018; Sihombing & Rahardjo, 2014; Skousen & Twedt, 2009; Sunardi & Amin, 2018; Yusof, 2016). Furthermore, the opportunity variable can be seen through the nature of the industry, which is the ideal state of a company as measured by the ratio of total trade receivables (loans given by banks to customers), which can be responded to differently by company managers. Murtanto & Kusumaningrum (2016) revealed that the nature of the industry, as measured by the percentage change in total receivables in sales, negatively affects the detection of fraudulent financial reporting.

Meanwhile, Rahmayuni (2018) states that industrial conditions have a negative effect on fraudulent financial reporting, namely that the more stable the industrial conditions of a company will reduce the occurrence of fraudulent financial reports because it can reduce the amount of receivables it has and increase the company's cash. Research conducted by Nurmala and Rahmawati (2019) shows that the nature of the industry, as proxied by the receivables change ratio, has a negative effect on fraudulent financial reporting. Based on the explanation above, the higher the ratio of independent commissioners of a company and the higher the nature of the industry or ideal condition of a company, the lower the indications of fraudulent financial reporting. Thus, the research hypothesis can be formulated below.

H$_4$: *Opportunity has a negative effect on fraudulent financial reporting.*

The Effect of Rationalization on Fraudulent Financial Reporting

Cressey (1953) explained that rationalization is an essential element in fraud, where the perpetrator looks for justification before committing the crime, not after committing the act. Fraud is committed based on someone's rationalization that the act is not a violation. Auditors can provide several opinions on the company they are auditing according to the conditions of the company. Changing auditors in a company can be seen as an effort to eliminate traces of fraud (fraud trial) discovered by the previous auditor. This tendency encourages companies to replace their independent auditors to cover up fraud within the company (Skousen et al., 2009). Furthermore, audit tenure is the length of engagement between the auditor and the client. Theoretically, the longer the assignment period, the more likely the auditor's independence will decrease, so the auditor will no longer be able to find or report fraud in financial reporting. Theoretically, the longer the assignment period, the more likely the auditor's independence will decrease, so the auditor will no longer be able to find or report fraud in financial reporting. However, in other research, it is possible that if an auditor has been auditing a company for a long time, the auditor has a good understanding of the company's business scope and accounting system so that he can minimize or prevent fraudulent practices. Based on the description above, the research hypothesis can be formulated as follows.

H$_5$: *Rationalization has a positive effect on fraudulent financial reporting.*

The Effect of Ego on Fraudulent Financial Reporting

Ego/arrogance is a person's superiority attitude combined with entitlement or greed and a belief that internal control does not apply to him (Crowe, 2011). The number of CEO photos appearing in a company's annual report represents the level of arrogance or superiority the CEO possesses. High levels of arrogance can lead to fraud. This is supported by research by Yusof (2016) and Christian et al (2019) but not by research by Lastanti (2020). Furthermore, another indicator of the ego variable is CEO duality, namely duality of positions or multiple positions, which gives the CEO great power. So, this can very quickly give rise to fraud. This is supported by research by Devi et al (2021), which states that CEO duality positively affects fraudulent financial reporting. Meanwhile, Yusof (2016) research results state that CEO duality does not affect fraudulent financial reporting. Based on the description above, the research hypothesis can be formulated as follows.

H$_6$: *Ego has a positive effect on fraudulent financial reporting.*

The Effect of Lack of Empathy on Fraudulent Financial Reporting

A person or company lacking empathy will reflect unethical and immoral behavior or actions and tend to practice fraudulent financial reporting. Goleman (2001) explains that the more complex the job, the higher the emotional intelligence will require. The lack of empathy variable in this research is measured by the dimension of lack of concern, with indicators of employee turnover and greenwashing. Digital disruption has caused the banking industry to experience employee turnover, which positively impacts the organization, bringing it to a higher efficiency level. Turnover of employees is needed by organizations for employees who have low performance. However, we must be careful if most employees who leave a job or organization are competent human resources (Rahadi, 2021). Furthermore, greenwashing is a marketing and communication strategy for a company to provide an environmentally friendly image, both in terms of products, values , and company goals, without actually carrying out activities that have an impact on environmental sustainability or manipulating public opinion (Aggarwal & Kadyan, 2014; Akturan, 2018; Gracianty, 2023; Mangini et al., 2020). Thus, the stronger a company carries out greenwashing, the more likely it will reduce the practice of fraudulent financial reporting because it has succeeded in increasing the company's profitability through greenwashing practices. Based on the description above, the research hypothesis can be formulated as follows.

H$_7$: *Lack of empathy has a negative effect on fraudulent financial reporting.*

The Effect of Lack of Spirituality on Fraudulent Financial Reporting

Lack of spirituality can disrupt interpersonal relationships, which can contribute to the emergence of mental disorders (Verghese, 2008). Spiritual intelligence is the intelligence to place behavior and life in a broader context of meaning (Zohar & Marshall, 2004). Previous research (Mitroff & Denton, 1999; Purnamasari & Amaliah, 2015) found that spirituality is one of the most significant factors in organizational performance. People with healthy spiritual intelligence can be sure they carry out their profession well and have strong self-control by applicable regulations (Ardilia, 2022). The research results of Fadli et al (2023) explain that auditors with high spiritual intelligence will positively detect fraud. Companies that are unable to place their behavior and life in a broader context of meaning are reflected in their unawareness in paying taxes, including by carrying out tax haven utilization practices which are triggered by profit motives so that the company moves its taxes to tax haven countries to get as much profit as possible. Furthermore, the ACFE survey (2019) results stated that, in general, respondents thought that fraud perpetrators tended to be punished less than the charges. Based on Zaki et al (2014), it is explained that after building awareness and understanding about various ethical violations, the most important thing to support the implementation of ethics is law enforcement to have a deterrent effect. Law enforcement takes the form of follow-up to public complaints, measured by the number of complaints that still need to be resolved. Based on the description above, the research hypothesis can be formulated as follows.

H$_8$: *Lack of spirituality has a positive effect on fraudulent financial reporting.*

Utilization of Social Media as a Whistleblowing System Information Channel Moderates the Effect of Stimulus on Fraudulent Financial Reporting

The development of information and communication technology has had the impact of strengthening transparency and openness processes to reduce fraudulent practices (Bertot et al., 2010). Social media can effectively promote openness and accountability in the public sector, reducing the risk of corruption (Stamati et al., 2015). Whistleblowers aware of fraudulent practices committed by company management or an employee when facing conditions to maintain financial stability, face external pressure, achieve financial targets, and fulfill personal financial needs will be more courageous in disclosing these fraudulent practices personally to the public using the media social media as a whistleblowing system information channel. Using social media as a whistleblowing system information channel makes whistleblowers brave enough to reveal facts if they find indications of fraudulent practices. Utilizing social media as a whistleblowing system information channel will narrow the gap for fraud. Based on the description above, the following hypothesis is formulated.

H$_9$: *Using social media as a whistleblowing system information channel weakens the effect of stimulus on fraudulent financial reporting.*

Utilization of Social Media as a Whistleblowing System Information Channel Moderates the Effect of Capability on Fraudulent Financial Reporting

The increasing development of social media has created a new role for the digital community in efforts to uncover various forms of fraud. Arianto (2021) explains that the development of information technology is a learning process that does not only allow humans who have cognitive abilities to contribute to the process of human motivation, affection, action, or actions alone. However, it can also motivate and regulate behavior by creating a social system to organize and structure a person's life. Whistleblowers will help reveal the behavior of perpetrators, strengthen the supervisory function, and increase the capabilities of commissioners and administrators in managing the company. Thus, using social media as a whistleblowing system information channel will strengthen a company's ability to monitor and evaluate a company's performance and can mitigate the risk of fraud. Based on the description above, the following hypothesis is formulated.

H$_{10}$: *Using social media as a whistleblowing system information channel strengthens the capability's influence on fraudulent financial reporting.*

Utilization of Social Media as a Whistleblowing System Information Channel Moderates the Effect of Collusion on Fraudulent Financial Reporting

Whistleblowing is the disclosure of fraudulent information that impacts losses to the state or society with the aim of the common interest and not for personal interests (Islamiyah et al., 2020). The whistleblowing system is a place or forum for whistleblowers to report acts of fraud (Widiyarta et al., 2017). The whistleblowing system is an effective mechanism for detecting fraud (MacGregor et al., 2014). Previous research on fraud prevention shows a positive effect between the whistleblowing system and fraud prevention (Saputra et al., 2020). However, in contrast to other previous research (Maisaroh & Nurhidayati, 2021), it is clear that the whistleblowing system does not affect preventing fraud. The whistleblower will continue to monitor the behavior of company management in contact with the government, political parties, government officials, or political officials if there are indications of fraudulent practices through whistleblowing system information channels. Thus, using social media as a whistleblowing system information channel will reveal fraudulent practices from hidden cooperative relationships between a company and the government or politicians. Based on the description above, the following hypothesis is formulated.

H_{11}: *Using social media as a whistleblowing system information channel weakens the effect of collusion on fraudulent financial reporting.*

Utilization of Social Media as a Whistleblowing System Information Channel Moderates the Effect of Opportunity on Fraudulent Financial Reporting

Social media as a whistleblowing system information channel is one of the internal control systems that every company should implement in line with developments in technology and information. Implementing a whistleblowing system is used as a signal effect on the desires of organizational members (Pittroff, 2014). ACFE Indonesia (2020) data shows that the lack of internal supervision and neglect of internal control are the fraud reasons, with percentages of 24.3% and 18%, respectively. Control aims to prevent fraud (Tuanakota, 2010). ACFE Indonesia (2020) research shows that leadership attitudes are the highest reason for fraud occurring at 27.6%. Leadership can also be seen as a tool for achieving goals where the leader will help his members achieve common goals (Kinicki & Kreitner, 2009). Influential leaders can affect their members' ability to achieve common interests (Lussier & Achua, 2016). Using social media as a whistleblowing system information channel as an internal control tool can support the supervisory function, which should be the responsibility of the board of commissioners, and it becomes an effective supervisory unit in monitoring the company's financial performance. Whistleblowers will also help and support the internal monitoring function in disclosing company financial performance data that could indicate fraudulent financial reporting. Thus, the formulation of the hypothesis is as follows.

H_{12}: *Using social media as a whistleblowing system information channel strengthens the effect of opportunity on fraudulent financial reporting.*

Utilization of Social Media as a Whistleblowing System Information Channel Moderates the Effect of Rationalization on Fraudulent Financial Reporting

The use of social media as a whistleblowing system information channel embodies a company's sense of belonging and sense of identity so that the company always instills good values and culture, including by complying with applicable regulations, such as provisions for audit engagement periods by public accountants—the same as the audit opinion provided by the public accounting firm. Whistleblowers who know about the condition of companies that do not comply with applicable regulations will submit complaints through the whistleblowing system information channels available on the company's social media. Likewise, an audit opinion that reflects poor company performance will be embarrassing and trigger transparent and open questions and complaints against the perpetrators who caused the condition. Based on the description above, the following hypothesis is formulated.

H_{13}: *Using social media as a whistleblowing system information channel weakens the effect of rationalization on fraudulent financial reporting.*

Utilization of Social Media as a Whistleblowing System Information Channel Moderates the Effect of Ego on Fraudulent Financial Reporting

Fraud perpetrators have a strong ego and confidence that they will not be detected, or others believe they can quickly get out of trouble if caught. Allan (2003) notes that one of the common personality types of fraud perpetrators is egoist, someone who always desires to succeed and is self-centered, self-confident, and narcissistic. The whistleblowing system information channel is a reporting tool for internal groups and the general public to report behavior or actions that violate the code of ethics and behavior carried out by prospective or perpetrators of fraud, including behavior not by good values, ethics, and applicable regulations. Using social media as a whistleblowing system information channel will make fraud perpetrators with high egos feel restless and disturbed because every action and behavior is monitored and can be complained about through the complaint channel with the whistleblower's identity kept confidential. There are provisions for following up on every complaint made. Applicable procedures and conditions accept them. Based on the description above, the following hypothesis is formulated.

H_{14}: *Using social media as a whistleblowing system information channel weakens the effect of ego on fraudulent financial reporting.*

Utilization of Social Media as a Whistleblowing System Information Channel Moderates the Effect of Lack of Empathy on Fraudulent Financial Reporting

In previous research, Elia et al. (2023) explained that a lack of empathy causes indifference to the negative impacts that may be caused by criminal acts committed by oneself. Choi et al. (2022) show evidence that empathy is related to criminal activity, acceptance of online harassment, cyberbullying, and so on. Chin et al. (2023) explain that people with empathy are better equipped with their moral beliefs without being forced to conform or misbehave. The practice of greenwashing is one of the intelligent advertising concepts to improve branding in building awareness and a strong brand image in customers' eyes so that strong and sustainable branding results can be achieved. Companies that carry out greenwashing will continue to strive to build an excellent corporate image through social media, including whistleblowing system information. Social media as an information channel for the company's whistleblowing system is critical to achieving transparency (Wahl-Jorgensen & Hunt, 2012). The increasing role of social media in all life activities, including as a whistleblowing system information channel, will create a good reputation for companies that practice a lack of empathy (including greenwashing). Based on the description above, the following hypothesis is formulated.

H_{15}: *Using social media as a whistleblowing system information channel strengthens the effect of a lack of empathy on fraudulent* *financial reporting.*

Utilization of Social Media as a Whistleblowing System Information Channel Moderates the Effect of Lack of Spirituality on Fraudulent Financial Reporting

Arianto (2021) explains that social media has multi-functions in all activities, including as a whistleblowing system information channel, meaning that with the increasing variety of whistleblowing facilities, it will undoubtedly be able to attract the participation of whistleblowers to report various fraudulent practices. Khavari (2006) states that spiritual intelligence is the human soul's ability, which is the hidden potential of every person. The research results of Hage and Posner (2015) found that spiritual intelligence is an essential instrument for forming moral leaders. Purnamasari and Amaliah (2015) explained that conducive spirituality will minimize fraud. Belwalkar et al (2018) explained that spirituality in the workplace could also be interpreted as employees having an inner attachment to their work. Lack of spirituality will reduce satisfaction, decrease commitment, and cause a loss of love for the country, company, friends, family, and society, leading to fraudulent behavior. By ethical theory, Berten (2004) states that there are 3 (three) positions in ethics, namely: value system, code of ethics, and moral philosophy. Thus, companies that lack spirituality are not highly committed to eradicating fraudulent practices, so using social media as a whistleblowing system information channel will build transparency and the role of the internal environment and society in exposing fraudulent practices. Based on the description above, the following hypothesis is formulated.

H_{16}: *Utilizing social media as a whistleblowing system information channel weakens the effect of a lack of spirituality on fraudulent financial reporting.*

3. Methodology

This research uses quantitative and causal associative research methods that aim to determine the influence of stimulus, capability, collusion, opportunity, rationalization, ego, lack of empathy, and lack of spirituality on fraudulent financial reporting with a moderating variable in the form of the use of social media as a whistleblowing system information channel. This research uses quantitative methods with secondary data from financial and sustainability reports. The unit of analysis in this research is national public and private banking companies registered with the OJK, covering the period 2016 to 2022. Researchers carried out measurements at one particular time (pooled-cross sectional studies) for 7 (seven) years from 2016 until 2022 (pooled data). The data analysis technique in this research uses the multiple regression analysis method.

Fraudulent Financial Reporting (FFR)

The FFR measurement is calculated using the F-Score Model (Dechow et al., 1995) with the following formula.

F-Score = Accrual Quality + Financial Performance

Accrual Quality = (ΔWorking Capital + ΔNon Current Operating Accrual + Δ Financial Accrual) / Average Total Aset

Financial Performance = Change in Receivable + Change in Inventories + Change in Cash Sales + Change in Earnings

Note: F-Score > 2,45 (high risk); F-Score > 1,85 (substantial risk); F-Score > 1 (above normal risk); and F-Score < 1 (normal atau low risk).

Previous research has also used the F-Score model (Christian et al., 2019; Devi et al., 2021; Hung et al., 2017; Lastanti, 2020)(Hung et al., 2017; Christian et al., 2019; Lastanti, 2020; and Devi et al., 2021).

Stimulus (STM)

Stimulus in this research is measured in 4 (four) indicators, namely financial stability (proxied by the asset change ratio (ACH)), external pressure (proxied by the ratio of total debt to total assets (LEV)), personal financial need (proxied by the management share ownership ratio (OSH)); and financial targets (proxied by Return on Equity (ROE)). These measurements are by previous research (Brigham & Houston, 2001; Fitri et al., 2019; Keown et al., 2001; Kurniawati, 2021; Murwaningsari & Rachmawati, 2017; Omukaga, 2021; Ozcelik, 2020; Pohan, 2009; Santoso, 2018; Sihombing & Rahardjo, 2014; Skousen et al., 2009; Sunardi & Amin, 2018; Yusof, 2016).

$$\text{ACH} = \frac{\text{Total Assetst} - \text{Total Assets}_{t-1}}{\text{Total Assets}_{t-1}}$$

$$\text{LEV} = \frac{\text{Total Debt}}{\text{Total Assets}}$$

$$\text{OSH} = \frac{\text{Total Shares Owned by Management}}{\text{Total Common Shares Outstanding}}$$

$$\text{ROE} = \frac{\text{Net Profit}}{\text{Total Shareholders' Equity}}$$

Capability (CPB)

Capability in this research is measured in 3 (three) indicators, namely: Commissioner Characteristic (CMC) is proxied by the number of female commissioners in the board of commissioners (Adams & Ferreira, 2009); Commissioner Age (AGE) is measured by the age of the board of commissioners (Mudrack, 1989; Peterson et al., 2001; Serfling, 2014; Sundaram & Yermack, 2007; Wang et al., 2017), and a score measures CEO Educations (EDU) according to the level of formal education finally the board of directors, namely: 1 for undergraduate education level; 2 for master's level education; and 3 for doctoral education level (Altuwaijri & Kalyanaraman, 2020; Gottesman & Morey, 2010).

Collusion (COL)

Collusion is measured in 2 (two) indicators, namely Related Party Transaction (RPT), according to research by Jian and Wong (2010), and Politician Connection (POC), which is a development of previous research (Faccio et al., 2006; Gaio & Pinto, 2018; Shawtari et al., 2017; Vousinas, 2017).

$$\text{RPT} = \frac{\text{Total Debt to Affiliated Parties}}{\text{Total Debt}}$$

The POC index is compiled based on four (four) items: collaboration with government projects during the research period; the company being government-owned; the board of directors and/or board of commissioners holding concurrent positions as politicians or government officials; and the company owner or shareholder being a politician or government official.

POC Index = n / k (n = number of items that are fulfilled; k = 4).

Opportunity (OPP)

Opportunity is measured in 2 (two) indicators, namely Ineffective Monitoring (INM) and Nature of Industry (NOI).

$$\text{BOD} = \frac{\text{Number of Independent Commissioners}}{\text{Total Board of Commissioners}}$$

$$\text{NOI} = \frac{\text{Total Receivables}_t}{\text{Total Sales}_t} - \frac{\text{Total Receivables}_{t-1}}{\text{Total Sales}_{t-1}}$$

This measurement is by previous research (Fitri et al., 2019; Ojilong Omukaga, 2020; Ozcelik, 2020; Santoso, 2018; Sihombing & Rahardjo, 2014; Skousen & Twedt, 2009; Sunardi & Amin, 2018; Wang et al., 2017; Yusof, 2016).

Rationalisation (RTN)

Rationalization is measured in 2 (two) indicators, namely Auditor Tenure (AUT) and Audit Opinion (AUO) by previous research (Carey & Simnett, 2006; Dao et al., 2008; Fitri et al., 2019; Malau et al., 2019; Ozcelik, 2020; Pamungkas et al., 2018; Rahmina & Agoes, 2014; Shelton, 2014; Skousen et al., 2009).

Ego (EGO)

Ego is measured in 2 (two) indicators, namely CEO Narcissism (CEN) and CEO Duality (CED), by previous research (Christian et al., 2019; Finkelstein & D'aveni, 1994; Lam & Lee, 2008; Lastanti, 2020; Yusof, 2016).

Lack of Empathy (LOE)

Lack of empathy is measured in 2 (two) indicators, namely Greenwashing (GWS) and Turnover of Employees (TVE), by previous research (Hiererra & Sarayar, 2014; Setiawan & Yosephani, 2022; Tunggal & Fachrurrozie, 2014).

$$\text{GWS} = \frac{\text{Total Marketing Costs}}{\text{Total Cost of CSR}}$$

$$\text{TVE} = \frac{\text{Number of Employees Leaving a Year}}{\text{Average of Employees of the Year}}$$

Lack of Spirituality (LOS)

Lack of spirituality is measured in 2 (two) indicators, Tax Haven Utilization (THU) and Complaint Handling (CHD), by previous research (Damayanti & Prastiwi, 2017; Fullerton & Durtschi, 2004; Network, 2019, 2021, 2023).

Utilization of Social Media as a Whistleblowing System Information Channel (WBS)

This moderating variable is measured by the number of company social media (website, Twitter, Facebook, Instagram, YouTube, and TikTok) that convey information on whistleblowing system channels (Latan et al., 2020).

Control Variables

The control variables in this research are Return on Assets (ROA) and Debt to Equity Ratio (DER) by previous research (Dalnial et al., 2014; Devi et al., 2021; Fitri et al., 2019; Kirkos et al., 2007; Ozcelik, 2020; Pamungkas et al., 2018; Spathis et al., 2002; Yusof, 2016).

Selection of the Best Indicators from Independent Variables

Each independent variable in this research is measured using more than 1 (one) indicator. In order to select the best indicator, testing was carried out using Smart PLS, namely an indicator with an outer loading value > 0.70 and the highest loading factor (Ghozali & Latan, 2012, 2015). Based on the processing results from Smart PLS, the best indicators of the independent variables in this research were obtained, namely: Stimulus, using the LEV indicator; Capability, using the AGE indicator; Collusion, using the POC indicator; Opportunity, using the NOI indicator; Rationalization, using the AUT indicator; Ego, using the CED indicator; Lack of Empathy, using the GWS indicator; and Lack of Spirituality, using the THU indicator.

4. Results

This research, conducted with meticulous attention to detail, examines the influence of various factors on fraudulent financial reporting moderated by the use of social media as a whistleblowing system information channel. The research subjects, state-owned general banking companies and national private-public banks registered with the OJK from 2016 to 2022, were carefully selected. The research used a comprehensive set of secondary data, including financial and non-financial data, from financial and sustainability reports from 2016 until 2022. The sample data in this study amounted to 441 data points, ensuring a robust analysis. The results of descriptive statistics show that the average value of fraudulent financial reporting is 71.24%, and the standard deviation value is 5.7946, which shows that fraudulent financial reporting data varies between BUKU banks I and IV. The stimulus measured by leverage has a minimum value of 0.0008, a maximum value of 8.0939, an average value of 75.50%, and a standard deviation value of 0.4114, which shows that the variation in leverage data is relatively homogeneous. Capability, measured by the characteristic commissioner (female commissioner), has a minimum value of 0.0000, a maximum value of 5.0000, an average value of 111.11%, and a standard deviation value of 1.1216, which shows data for female commissioners varies slightly. Collusion, as measured by politician connection, has a minimum value of 0.0000, a maximum value of 0.7500, an average value of 32.94%, and a standard deviation value of 0.2137, which shows that the variation in politician connection data is relatively homogeneous. Opportunity, as measured by the nature of the industry (total receivables ratio), has a minimum value of -15.2364, a maximum value of 25.1225, an average value of 28.50%, and a standard deviation value of 2.4892, which shows the data the ratio of total bank receivables is relatively homogeneous. Rationalization, as measured by auditor tenure, has a minimum value of 1.0000, a maximum value of 0.7000, an average value of 287.53%, and a standard deviation value of 1.7736, which shows that the variation in auditor tenure data is relatively homogeneous. Ego, as measured by CEO duality, has a minimum value of 0.0000, a maximum value of 1.0000, an average value of 1.81%, and a standard deviation value of 0.1336, which shows that the CEO duality data is relatively varied. Lack of empathy, as measured by greenwashing, has a minimum value of 0.0002, a maximum value of 502.5919, an average value of 1,593.42%, and a standard deviation value of 51.0483, which shows greenwashing data between BUKU banks I to IV are relatively varied. Lack of spirituality, as measured by tax haven utilization, has a minimum value of 0.0000, a maximum value of 1.0000, an average value of 57.37%, and a standard deviation value of 0.4951, which shows variations in tax haven data Utilization between one bank and another is relatively homogeneous. Social media, which is measured by the amount of use of social media owned by the company as a whistleblowing system information channel, has a minimum value of 0.0000, a maximum value of 6.0000, an average value of 301.81%, and a standard deviation value of 1. 9504, which shows that the variation in data on the number of companies using social media as a whistleblowing system information channel is relatively homogeneous. Profitability, which is measured by return on assets, has a minimum value of -0.1806, a maximum value of 0.1080, an average value of 0.50%, and a standard deviation value of 0.0254, which shows the return on assets data is between one bank to another it is relatively varied. Liquidity, which is measured by the debt-to-equity ratio, has a minimum value of 0.0738, a maximum value of 16.0786, an average value of 478.61%, and a standard deviation value of 2.6738, which shows the debt-to-equity ratio data relatively homogeneous. Gujarati (2004) states that logarithmic transformation can be carried out on varying data to reduce heteroscedasticity in data. Gujarati and Porter (2017) explain that if there are differences in units and magnitudes of variables, the regression equation must be created using a logarithmic model to reduce symptoms of heteroscedasticity and determine the sensitivity between variables. The variables in this research data that can be subjected to logarithmic transformation are GWS and DER because they have data greater than zero. Thus, the moderation regression analysis equation is as follows:

$$FFR = \beta_0 + \beta_1 LEV + \beta_2 CMC + \beta_3 POC + \beta_4 NOI + \beta_5 AUT + \beta_6 CED + \beta_7 GWS + \beta_8 THU + \beta_9 LEV{*}WBS + \beta_{10} CMC{*}WBS + \beta_{11} POC{*}WBS + \beta_{12} NOI{*}WBS + \beta_{13} AUT{*}WBS + \beta_{14} CED{*}WBS + \beta_{15} GWS{*}WBS + \beta_{16} THU{*}SMD + \beta_{17} ROA + \beta_{18} DER + \varepsilon$$

After testing to produce the best model (common effect model/CEM), it was continued to fulfill the classical assumption test so that the model in this research did not experience problems: multicollinearity, heteroscedasticity, and autocorrelation. Based on the model feasibility test, it is known that the regression model in this research is suitable for use. Furthermore, the research results are in the table below according to the partial test (t-test) results. Table 1 shows the results of testing H1, namely the influence of stimulus as measured by leverage on fraudulent financial reporting. With a coefficient value of -1.419 (negative direction) and a p-value of 0.2037, it can be concluded that the stimulus is not proven to positively influence fraudulent financial reporting. The results of this study indicate that high or low leverage ratios in general banking companies do not trigger pressure on management to carry out fraudulent financial reporting practices because the audit committee in the general banking sector has performed well in mitigating the risk of leverage ratios. These results are by previous studies (Omukaga, 2021; Yusof, 2016).

Table 1
Hypothesis Test Results

Variable	Direction Prediction	Coefficient	P-Values	Explanation
C		3,0696	0,0012	
LEV	+	-1,4193	0,2037	H1 Rejected
CMC	-	-0,5285	0,3433	H2 Rejected
POC	+	2,0203	0,4701	H3 Rejected
NOI	-	-1,5494	0,0000***	H4 Accepted
AUT	+	0,1311	0,6254	H5 Rejected
CED	+	0,3395	0,9605	H6 Rejected
GWS	-	-0,4411	0,0065**	H7 Accepted
THU	+	2,5793	0,0074**	H8 Accepted
LEV*WBS	-	0,7547	0,0601	H9 Rejcted
CMC*WBS	+	0,0538	0,7080	H10 Rejected
POC*WBS	-	-0,8541	0,2530	H11 Rejected
NOI*WBS	+	0,2855	0,0000***	H12 Accepted
AUT*WBS	-	-0,0364	0,5818	H13 Rejected
CED*WBS	-	-0,2386	0,8685	H14 Rejected
GWS*WBS	+	0,1235	0,0065**	H15 Accepted
THU*WBS	-	-0,6454	0,0245**	H16 Accepted
ROA		29,6707	0,0041**	
DER		-1,7926	0,0000***	
	N Samples		441	
	R-Squared		0.2344	
	Adj. R-Squared		0.2017	

Notes: *p-value<0,1; **p-value<0,05; ***p-value<0,001
LEV: L*everage;* CMC: C*ommissioner Characteristic;* POC: *Political Connection;* NOI: *Nature of Industry;* AUT: *Auditor Tenure;* CED: *CEO Duality;* GWS: *Greenwashing;* THU: *Tax Haven Utilization;* WBS: *Whistleblowing System;* ROA: *Return on Assets*; DER: Debt to Equity Ratio.
Source: Results of data processing using Eviews.

In testing H2, namely the influence of capability as measured by commissioner characteristics on fraudulent financial reporting, the coefficient value was -0.5285 (negative direction), and the p-value was 0.3433, so it was concluded that capability was not proven to have a negative influence on fraudulent financial reporting. The results of this study provide a perspective that the proportion of female commissioners in general banking companies in Indonesia is still relatively small or prioritizes the role of men in the supervisory function. These results are from previous studies (Gunawan & Sulistiawan, 2018; Khaoula & Ali, 2012).

In testing H3, namely the effect of collusion as measured by political connections on fraudulent financial reporting, the coefficient value was 2.0203 (positive direction), and the p-value was 0.4701, so it was concluded that collusion was not proven to have a positive influence on fraudulent financial reporting. The results of this study explain that political connections do not always lead to fraud. Companies build political connections for specific purposes, including obtaining assistance if the company faces problems (pressure). This study's results are from previous studies (Correia, 2014; Johnson & Mitton, 2003; Li et al., 2020; Yu & Pan, 2008).

In testing H4, namely the influence of opportunity as measured by the nature of industry on fraudulent financial reporting, the coefficient value was -1.5494 (negative direction), and the p-value was 0.0000. Thus, it is concluded that opportunity influences fraudulent financial reporting negatively. The results of this study are similar to the results of previous studies (Aguspútri & Sofie, 2019; Faradiza, 2019; Murtanto & Kusumaningrum, 2016; Nurmala & Rahmawati, 2019; Rahmayuni, 2018), namely the higher the nature of industry (ratio of changes in receivables), the lower the indication of fraudulent financial reporting because an increase in receivables indicates a company in a stable condition or the company can compete with its competitors.

In testing H5, namely the influence of rationalization as measured by audit tenure on fraudulent financial reporting, a coefficient value of 0.1311 (positive direction) and a p-value of 0.6254 were obtained, so it was concluded that rationalization was not proven to have a positive influence on fraudulent financial reporting. The results of this study indicate that the longer the audit assignment period, the less effect on financial reporting fraud. This is possible because the auditors' performance is good, their independence is not compromised, and they have a better understanding so that they can minimize or prevent fraudulent financial reporting practices (Al-Thuneibat et al., 2011; Brooks & Sun, 2020; Lestari, 2022; Qoyyimah et al., 2015).

In testing H6, namely the influence of ego as measured by CEO duality on fraudulent financial reporting, the coefficient value was 0.3395 (positive direction), and the p-value was 0.9605, so it was concluded that ego was not proven to have a positive influence on fraudulent financial reporting. The results of this study are supported by the results of previous studies (Sasongko & Wijayantika, 2019; Yusof, 2016), which stated that CEO duality is used by the person concerned to maintain the performance of his company so that it remains sustainable (performing well) and does not impact the practice of financial reporting fraud.

In testing H7, namely the effect of lack of empathy as measured by greenwashing on fraudulent financial reporting, the coefficient value was -0.4410 (negative direction), and the p-value was 0.0065. Thus, it is concluded that a lack of empathy negatively influences fraudulent financial reporting. The results of this study are supported by previous studies which explain that greenwashing will provide an environmentally friendly image, both in terms of products, values, and company goals, without actually carrying out activities that have an impact on environmental sustainability (Aggarwal & Kadyan, 2014; Gracianty, 2023). Greenwashing aims to manipulate public opinion (Mangini et al., 2020). et al. (1985) explained that in this condition, managers would choose a substitution strategy for financial reporting; namely, the greenwashing strategy chosen can reduce fraudulent financial reporting practices. Thus, the stronger a company carries out greenwashing, the more fraudulent financial reporting practices will be reduced because it has succeeded in increasing its profitability through greenwashing practices.

In testing H8, namely, the influence of lack of spirituality as measured by tax haven utilization on fraudulent financial reporting, the coefficient value was 2.5793 (positive direction), and the p-value was 0.0074. Thus, it is concluded that a lack of spirituality positively influences fraudulent financial reporting. The results of this study are to the results of previous studies (Ardilia, 2022; Fadli et al., 2023; Mitroff & Denton, 1999; Purnamasari & Amaliah, 2015), namely that the spirituality variable is the most significant factor in organizational performance and plays a role in self-control against fraudulent practices.

In testing H9, namely the effect of stimulus moderated by using social media as a whistleblowing system information channel on fraudulent financial reporting, a coefficient value of 0.7547 (positive direction) and a p-value of 0.0601 were obtained. It was concluded that using social media as a whistleblowing information channel has not proven to weaken the effect of stimulus on fraudulent financial reporting. The reporter will reveal violation practices through the violation reporting system information channel (social media) regarding the increase in the leverage ratio related to fraudulent acts and support the role of the audit committee in a company. However, the truth of the reporter's report is still in doubt due to the validity of the data. This condition continues to encourage openness and accountability in the public sector to prevent fraudulent practices, even though the role of social media has not significantly influenced the relationship between stimulus and fraudulent financial reports.

In testing H10, namely the influence of capability moderated by using social media as a whistleblowing system information channel on fraudulent financial reporting, the coefficient value was 0.0538 (positive direction). The p-value was 0.7080, so it was concluded that the use of social media as an information channel The whistleblowing system has not been proven to strengthen the influence of capability on fraudulent financial reporting. The results of this study provide a perspective that the use of social media as a whistleblowing system information channel does not play a role in supporting the supervisory function of female commissioners in detecting fraudulent financial reporting because the proportion of female commissioners (associated as independent commissioners) is relatively tiny so that the use of social media as a whistleblowing system information channel cannot function effectively and efficiently (Bertot et al., 2010; Latan et al., 2020).

In testing H11, namely the effect of collusion, which is moderated by the use of social media as a whistleblowing system information channel on fraudulent financial reporting, a coefficient value of -0.8541 (negative direction) and a p-value of 0.2530 were obtained, so it was concluded that the use of social media as a channel Whistleblowing system information had not been proven to weaken the influence of collusion on fraudulent financial reporting. Previous studies (Maisaroh & Nurhidayati, 2021; Sujana et al., 2020) support this study's results. These studies explain that the whistleblowing system has no effect on fraud prevention. The whistleblowing system channel is closely related to the whistleblower's trust (Pittroff, 2014). Whistleblowers must be guaranteed security when disclosing politician connections that influence fraudulent practices.

In testing H12, namely the influence of opportunity, which is moderated by the use of social media as a whistleblowing system information channel on fraudulent financial reporting, a coefficient value of 0.2855 (positive direction) and a p-value of 0.0000 were obtained, so it was concluded that the use of social media as an information channel The whistleblowing system has been proven to strengthen the influence of opportunity on fraudulent financial reporting. The results of this study support the results of previous studies (ACFE, 2020; Arianto, 2021; Graham et al., 2015; Ionescu, 2016; Kinicki & Kreitner, 2009; Lussier & Achua, 2016; Oliveira & Welch, 2013; Pittroff, 2014; Tuanakotta, 2010), which explain that an excellent whistleblowing system will also function as a monitoring tool so that it will reduce or eliminate fraudulent financial reporting practices. The increasingly stable nature of a company's industry will reduce the occurrence of fraudulent financial reporting, so the use of social media as a whistleblowing system information channel will further support this condition.

In testing H13, namely the influence of rationalization, which is moderated by the use of social media as a whistleblowing system information channel on fraudulent financial reporting, a coefficient value of -0.0364 (negative direction) and a p-value of 0.5818 were obtained, so it was concluded that the use of social media as a channel Whistleblowing system information had not been proven to weaken the influence of rationalization on fraudulent financial reporting. The results of this study also indicate that the use of social media as a whistleblowing system information channel does not affect the audit tenure relationship that exceeds the time limit according to applicable provisions regarding fraud practices because auditors can minimize or prevent fraudulent reporting practices (Al-Thuneibat et al., 2011; Brooks & Sun, 2020; Lestari, 2022; Qoyyimah et al., 2015).

In testing H14, namely the influence of ego, moderated by using social media as a whistleblowing system information channel on fraudulent financial reporting, the coefficient value was -0.2386 (negative direction). The p-value was 0.8685, so it was concluded that the use of social media as an information channel The whistleblowing system has not been proven to weaken the influence of ego on fraudulent financial reporting. Using social media as a whistleblowing system information channel does not weaken the influence of CEO duality on fraudulent financial reporting because whistleblowers do not find any indication of fraud in the dualism of positions. Whistleblowing information channels must be balanced with neutral complaint services and whistleblower protection to uncover fraudulent behavior (Bertot et al., 2010; Latan et al., 2020).

In testing H15, the effect of lack of empathy was moderated by using social media as a whistleblowing system information channel for fraudulent financial reporting. The coefficient value was 0.1235 (positive direction). The p-value was 0.0065, so it was concluded that using social media as a whistleblowing system information channel had been proven to strengthen the influence of a lack of empathy on fraudulent financial reporting. Social media as a whistleblowing system information channel is part of the criticism process to realize transparency (Wahl-Jorgensen & Hunt, 2012). Companies that do greenwashing will continue to try to build an excellent corporate image through social media, including providing a whistleblowing system information channel, to continue to appear as a company with a good reputation.

In testing H16, namely the influence of lack of spirituality, which is moderated by the use of social media as a whistleblowing system information channel on fraudulent financial reporting, a coefficient value of -0.6454 (negative direction) and a p-value of 0.0000 are obtained, so it is concluded that social media is a The whistleblowing system information channel has been proven to weaken the influence of lack of spirituality on fraudulent financial reporting. The practice of financial reporting fraud through tax haven utilization can be reported through social media as a whistleblowing system information channel. The use of social media is often used by networks as a means of formal communication to the public (Arianto, 2020; Graham et al., 2015; Oliveira & Welch, 2013) so that social media can be used as a means of controlling fraud or corruption (Ionescu, 2016).

Furthermore, a sensitivity test was conducted to determine the consistency of the research results using the old measurement, namely the fraud hexagon (Vousinas, 2019). The table below compares the measurement results with the studied model (fraud hexagon transformation) with the fraud hexagon (Vousinas, 2019).

Table 2

Sensitivity Test

Variable	Direction Prediction	Fraud Hexagon Transformation		Fraud Hexagon (Vousinas, 2019)	
		Coefficient	Prob.	Coefficient	Prob.
C		3,0696	0.0012	3,5097	0,0001
LEV	+	-1,4193	0.2037	-1,1939	0,2847
CMC	-	-0,5285	0.3433	-0,1678	0,7626
POC	+	2,0203	0.4701	3,6940	0,1772
NOI	-	-1,5494	0.0000***	-1,5780	0,0000***
AUT	+	0,1311	0.6254	0,1415	0,5863
CED	+	0,3395	0.9605	2,0417	0,7674
GWS	-	-0,4411	0.0065**		
THU	+	2,5793	0.0074**		
LEV*WBS	-	0,7547	0.0601	0,5827	0,1453
CMC*WBS	+	0,0538	0.7080	-0,0499	0,7241
POC*WBS	-	-0,8541	0.2530	-1,2389	0,0807
NOI*WBS	+	0,2855	0.0000***	0,2924	0,0000***
AUT*WBS	-	-0,0364	0.5818	-0,0364	0,5736
CED*WBS	-	-0,2386	0.8685	-0,7493	0,6045
GWS*WBS	+	0,1235	0.0065**		
THU*WBS	-	-0,6454	0.0245**		
ROA		29,6707	0.0041**	21.96880	0,0316**
DER		-1,7926	0.0000***	-1.809678	0,0000***
N Samples		441		441	
R-Squared		0,2344		0,2065	
Adj. R-Squared		0,2017		0,1804	

Notes: *p-value<0,1; **p-value<0,05; ***p-value<0,001

LEV: L*everage;* CMC: C*ommissioner Characteristic;* POC: *Political Connection;* NOI: *Nature of Industry;* AUT: *Auditor Tenure;* CED: *CEO Duality;* GWS: *Greenwashing;* THU: *Tax Haven Utilization;* WBS: *Whistleblowing System;* ROA: *Return on Assets*; DER: *Debt to Equity* Ratio

Source: Data processing results using Eviews

Table 2 above shows that the regression model with the new fraudulent financial reporting measurement proposed by the researcher (fraud hexagon transformation) provides a better research picture when compared to the fraudulent financial reporting measurement of the fraud hexagon model (Vousinas, 2019). This study's new measurement (fraud hexagon transformation) can provide more accepted hypotheses. The adj-R2 value in the fraud hexagon transformation measurement model, of 20.17%, shows better results when compared to the fraud hexagon measurement (Vousinas, 2019), of 18.04%. This shows that the measurement of fraud hexagon transformation by adding 2 (two) independent variables, namely lack of empathy (using the greenwashing indicator) and lack of spirituality (using the tax haven utilization indicator), can explain 2.13% higher when compared to the fraud hexagon measurement (Vousinas, 2019). Furthermore, when looking at the significance value side, the research model of financial reporting fraud using the fraud hexagon transformation measurement proposed by the researcher is better when compared to the fraud hexagon model (Vousinas, 2019). The addition of the variables of lack of empathy and lack of spirituality has been shown to significantly affect the detection of fraud practices related to financial reporting.

4.1 Implications

The present study has presented the impact of various factors such as stimulus, capability, collusion, opportunity, rationalization, ego, lack of empathy, and lack of spirituality on fraudulent financial reporting. It also explores how social media can moderate these effects as a whistleblowing information channel. Meanwhile, this research has limitations, including the fact that several general banking companies must present information on CSR costs. This affects the number of research samples, and the presentation of information on follow-up to public complaints that still need to be resolved (complaint handling) varies (in the form of numbers and narratives), so it can cause differences. Perceptions and the sample in this study only used general banking companies (Persero and national private companies), so the research results were regarding fraudulent financial reporting practices that occurred in general banking companies. In the end, it is hoped that this research can contribute to the development of fraud theory and provide implications for regulators, including OJK, IAI, and DJP) in improving regulations to detect fraudulent practices.

4.2 Suggestions for further research

Future research is expected to be able to develop other indicators of the variable's lack of empathy and lack of spirituality, be able to compare fraudulent financial reporting practices that occur in developing countries (equivalent to Indonesia) using the transformation of fraud hexagon and be able to use data from other sector companies such as the manufacturing industry and mining industry sector.

5. Conclusion

This study examines the influence of stimulus, capability, collusion, opportunity, rationalization, ego, lack of empathy, and lack of spirituality on fraudulent financial reporting with a moderating variable in using social media as a whistleblowing system information channel. The research results show that stimulus does not affect fraudulent financial reporting; capability does not affect fraudulent financial reporting; collusion does not affect fraudulent financial reporting; opportunity has a negative effect on fraudulent financial reporting; rationalization does not affect fraudulent financial reporting; ego does not influence fraudulent financial reporting; lack of empathy has a negative effect on fraudulent financial reporting; lack of spirituality has a positive effect on fraudulent financial reporting; using social media as a whistleblowing system information channel does not weaken the influence of stimulus on fraudulent financial reporting; using social media as a whistleblowing system information channel does not strengthen the capability's influence on fraudulent financial reporting; using social media as a whistleblowing system information channel does not weaken the influence of collusion on fraudulent financial reporting; using social media as a whistleblowing system information channel strengthens the influence of opportunity on fraudulent financial reporting; using social media as a whistleblowing system information channel does not weaken the influence of rationalization on fraudulent financial reporting; using social media as a whistleblowing system information channel does not weaken the influence of ego on fraudulent financial reporting; using social media as a whistleblowing system information channel strengthens the influence of a lack of empathy on fraudulent financial reporting; and using social media as a whistleblowing system information channel weakens the influence of lack of spirituality on fraudulent financial reporting. Based on the sensitivity analysis, the regression model with the new fraudulent financial reporting measurement proposed by the researcher (fraud hexagon transformation) provides a better research picture than the fraudulent financial reporting measurement using the fraud hexagon model by Vousinas.

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