

IMPLEMENTATION OF FRAUD TRIANGLE THEORY: A SYSTEMATIC LITERATURE REVIEW

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Abstract

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Fraud triangle theory popularized by Cressey (1953) and adopted by Statement of Auditing Standards No. 99, states that fraud occurs when there are three elements, namely: pressure, opportunity, and rationalization. This theory is criticized because it is considered unable to describe all the motivations of fraud perpetrators. This study aimed at developing Homer (2020) research, expanding it with criticism and developing variables in the fraud triangle. This research did not only focus on types of fraud based on the fraud tree but also added academic fraud. Methodologically, this research was a systematic literature review using six steps in determining the samples. This study summarized 25 Scopus articles using at least one element of the fraud triangle. From the 25 included studies, 80 percent reviewed the three elements of the fraud triangle in their research. As much as 60 percent of research results supported that the three elements of the fraud triangle can increase fraud motivation. Although the fraud triangle theory has received much criticism, researchers are trying to develop the fraud triangle theory by adding other variables and with theoretical support. This review recommends filling the research gap in developing the fraud triangle theory by looking at previous researches.

Keywords: Fraud Triangle, Systematic Review, Fraud, White Collar Crime, Corporate Fraud, Academic Fraud

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1. INTRODUCTION

Statement of Auditing Standards (SAS) No. 99 defines fraud as a deliberate act to produce a material misstatement in financial statements. Based on Rezaee et al. (2003), fraudsters commit intentional fraud and other actions to obtain illegal profits from an entity regardless of the harm it may cause. The issue of fraud has always attracted

the attention of researchers around the world because of the increasing number of reported fraud cases and the consequences for business sustainability (Koomson et al., 2020) due to losses received by the company confirmed by the Association of Certified Fraud Examiners (ACFE, 2020) which highlights the loss of 5% of company revenue every year due to fraud. The corporate financial fraud scandals of Enron, WorldCom, Tyco,

and Global Crossing have attracted the attention of academic researchers around the world, and professional accounting and auditing bodies (Abdullahi & Mansor, 2018). The Enron case is just one of the few cases in the world. The ACFE (2020) survey provided evidence that there were 2,504 cases of fraud in the world from 125 countries surveyed with total losses exceeding \$3.6 billion. Fraudsters continue to make mistakes even though they are aware of the dangers that may arise. Fraud cases by the ACFE are known as the “fraud tree”, consisting of corruption, misappropriation of assets, and fraudulent financial statements. The most common cases of corruption occur in each region. Misappropriation of assets is also common in every region but with the lowest losses. Meanwhile, fraud on financial statements is the least common scheme in every region but causes the highest losses. The high rate of fraud that occurs attracts the attention of researchers to continue to develop fraud, early warning models.

Previous researchers, namely Homer (2020) conducted research related to the fraud triangle theory with a sample of 33 articles in international journals with the keyword “fraud triangle”. The results of his research state that the fraud triangle theory has received support from various kinds of literature, countries, and industries. It is proven that 20 articles from 25 samples use the three elements of the fraud triangle theory and the element that is most often missing is the rationalization element because it is considered the most difficult to measure (Albrecht et al., 2004). This study intended to develop Homer’s (2020) research by expanding the problem formulation not only to discuss the use of elements of fraud triangle theory in sample research but also criticism of fraud triangle theory and the developments made by researchers on elements of fraud triangle theory. This research does not only focus on the fraud tree (corruption, misappropriation of assets, and financial statement fraud). This study also included academic cheating. To further test the usefulness of theory and generalizations, researchers have applied the fraud triangle to other settings, such as cheating behaviour in the classroom (Becker et al., 2006). With wider exposure, the results of this study are expected to provide input for the development of fraud theory. Understanding a person’s motivation to commit fraud is important to combat it (Zuberi & Mzenzi, 2019) and assists the Certified Public Accountants (CPAs) in assessing risk, and implementing appropriate prevention and detection measures. This research also contributes to describing research gaps from several research samples to be developed for future researchers.

The study is structured as follows. Section 1 has given the readers an introduction to the topic. Section 2 reviewed the relevant literature. Section 3 showed the methodology in a systematic research literature review to determine which articles are included in the research sample. Sections 4 and 5 discussed the use, criticism and development of the fraud triangle theory in previous research. Section 6 concluded the review of the articles carried out; it concluded whether the fraud triangle theory remains a generally accepted theory among researchers.

2. THEORETICAL FRAMEWORK

Recognizing the seriousness of the impact of fraud, researchers are looking for ways to prevent fraud by analysing the factors that motivate a person to commit fraud. If this motivation can be suppressed, fraud prevention efforts can be easier because the root of the problem has been solved. The theory that explains the motivation for fraud is the most popular fraud triangle theory introduced by (Cressey, 1953). Based on this theory, the three elements of fraud that must be present together for fraud to occur are pressure, opportunity, and rationalization. Several studies state that the three elements in the fraud triangle have a role in increasing a person’s tendency to commit fraud (Abdullahi & Mansor, 2018; Mustafa Bakri et al., 2017; Zuberi & Mzenzi, 2019). However, four other researchers stated that the three elements of the fraud triangle theory were not proven as antecedents of individual fraudulent behaviour (Anindya & Adhariani, 2019). In determining the reasons why people commit fraud, Cressey (1950) formulated a theory called the fraud triangle theory after interviewing 250 criminals for five months. This theory was first published in 1953. The elements are pressure/incentive, opportunity, and rationalization. Fraud triangle theory becomes a valuable concept to support fraud examination in theory and practice development.

The elements of pressure, perceived opportunity, and rationalization are interrelated. Perceived pressure and opportunity are created when a person can rationalize fraudulent behaviour. The fraud triangle theory has succeeded in developing the theoretical foundations that are predicted to be responsible for the occurrence of fraud (Koomson et al., 2020). Although fraud triangle theory is accepted by auditing standards and is widely used in the literature, many have tried to criticize it. The “fraud triangle” has been developed by several researchers as the main theory of causes of workplace fraud (Dorminey et al., 2010). However, this theory still causes scientific debate because it is not yet well established to explain the fraudulent behaviour of individuals in organizations (Free & Murphy, 2015). Pressure and opportunity are generally accepted as predictors of fraud (Hogan et al., 2008), and detailed guidance on the pressures and opportunities contained in auditing standards but rationalizations get little guidance (Hogan et al., 2008). Furthermore, this study tries to review published articles to see their interest and support for the fraud triangle theory and the types of fraud studied.

At the end of 1984, Albrecht et al. (2004) modified the fraud triangle theory and introduced the fraud scale theory by replacing the rationalization element with personal integrity because their study focused on fraudulent financial statements. They argue that someone with high integrity is less likely to commit fraudulent financial statements. The other two elements, namely pressure, and opportunity are still used. Furthermore, a study conducted by Wolfe and Hermanson (2004) added a fourth element to the fraud triangle and named it the fraud diamond theory. It was stated that capability must be present together with pressure, opportunity, and rationalization because the presence

of capability will enable actors to take advantage of existing opportunities. The results of research by Indarto and Ghozali (2016) stated that capability was able to increase the tendency of fraud while the results of the research by Handoko and Aurelia, (2021) and Handoko and Tandean (2021) stated that capability does not play a role in increasing the possibility of fraud.

Dorminey et al. (2010) issued the acronym MICE (money, ideology, coercion, ego) as a driving factor for financial statement fraud. This is done by emphasizing the element of pressure in the fraud triangle which is not necessarily only related to financial pressure, so they use the term situational pressure. Motivation in the form of money is the main motivation for cheating. Moreover, ideology is a person's belief about what is right and wrong. This resembles the rationalization element in the fraud triangle theory. Coercion occurs when individuals are forced to engage in fraud cases. Pressure may come from superiors. On the other hand, ego is a form of pressure to maintain a good reputation in the eyes of colleagues, family, and society. The MICE model is not much different from the fraud triangle theory and fraud diamond theory, but the proposal to include the ego element as an element of fraud has proven to be needed in various financial fraud scandals. The ego element as a fraud motivator is supported by researchers including (Handoko & Aurelia, 2021; Vousinas, 2019).

Moreover, Horwath (2011) finds elements of competence and arrogance as triggers for fraud, competence replaces the element of capability in the fraud diamond theory so it becomes five elements called fraud pentagon theory. Arrogance as a newly identified fraud element is an attitude of superiority including bullying, a big ego, an autocratic management style, and being status-oriented. According to another researcher, Vousinas (2019), when a person has power over another

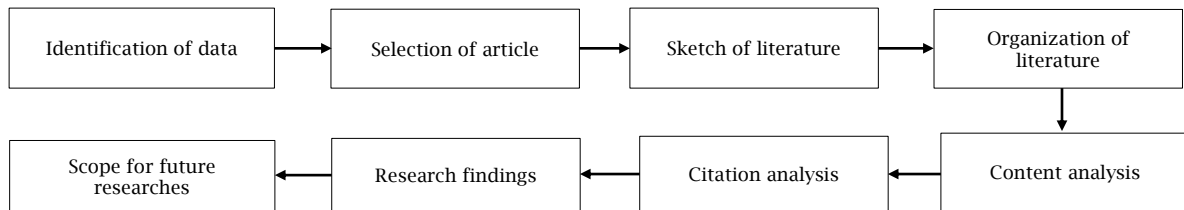
person or a situation, they assume that they have the right to use all means to achieve something even in unlawful ways. Different things were expressed by Ariyanto et al. (2021), Handoko and Tandean (2021) that ego does not affect fraud.

Furthermore, Vousinas (2019) adds an element of collusion among employees that can increase fraudulent actions. Internal control that has been built will be able to be disabled when employees collude. This is following the results of the ACFE (2022) that collusion carried out by two or more people resulted in the highest losses reaching \$364,000 per year. This is evidenced by Handoko and Tandean (2021) that collusion plays an important role in increasing fraud. However, it is different from the results of Handoko and Aurelia's (2021) research that collusion is not able to trigger fraud that occurs. From several developments in the theory of fraud, this study emphasizes the first theory, namely the fraud triangle theory. Fraud triangle theory is the most common framework used in academic literature and has been adopted in the auditing standards, namely SAS No. 99: Consideration of Fraud in a Financial Statement Audit. The fraud triangle is recognized as a springboard for positive ideas in explaining fraud early warning (Dellaportas, 2013; Dorminey et al., 2010).

3. RESEARCH METHODOLOGY

Systematic literature review methodology has been used in this study. Systematic literature review (SLR) is the most appropriate methodology to use when reviewing the existing literature in a particular area (Kitchenham & Pfleeger, 2002; Tranfield et al., 2003). As described in the literature, the systematic review process can be divided into eight phases as shown in Figure 1.

Figure 1. Process systematic review



Source: Kayani et al. (2019).

To collect previous studies related to the fraud triangle theory, the search for previous studies was carried out using a digital library that has a large repository for academic studies, namely Emerald Insight, Taylor & Francis Online, ProQuest, and IEEE Explore. This digital library is included in the category of the top fifteen largest publishers in the world. The sample selection is carried out in six steps: 1) initial exploration is carried out by searching for articles using the keyword "fraud-triangle"; 2) selecting peer-reviewed journals and eliminating articles from book chapters, conferences,

books, and others to produce quality journals; 3) to consider the period. The period considered for this study is 2017 to 2021. This period was chosen to analyse the latest literature in this field; 4) to eliminate articles that do not use primary data; 5) to obtain English articles; 6) to obtain articles according to the research field. The sample that was finally selected through the steps above amounted to 25 research articles and had been checked for duplication. The number of studies obtained from the selection results of each step from the first step to the sixth step can be summarized in Table 1.

Table 1. Sample selection

Digital library	1st step (Searching for articles using the keyword "fraud-triangle")	2nd step (Selecting peer-reviewed journals)	3rd step (Research period)	4th step (Eliminating articles that do not use primary data)	5th step (English articles)	6th step (Articles according to the research field)
Emerald Insight	323	221	147	66	21	20
Taylor & Francis Online	1.925	1.565	456	209	209	1
ProQuest	283	204	140	70	61	6
IEEE Explore	7	6	3	1	1	1
Springer	313	94	52	36	36	4
Total sample (after eliminating duplication)						25

4. FINDINGS

4.1. Bibliometric analysis

Related to the topic of fraud has always been an interesting topic, this is because there have been many rules set by the government and efforts made by companies but fraud still occurs. Fraudulent financial statements by the company can threaten the market value, reputation, and capabilities of the entity. Fraud is an activity that intentionally deceives others and provides false information. According to Peterson (2004), the term fraud will inevitably refer to intentional activity because the difference between fraud and error is intention. There is a classification of fraud that can be distinguished, namely internal fraud and external fraud. Fraud committed by internal auditors, executives, employees, boards of directors, and managers is called internal fraud. If fraud occurs within the organization, for example by their employees, this fraud is referred to as job fraud. On the other hand, external fraud is fraud committed by people outside the company such as customers, suppliers, creditors, external auditors, and investors.

There are 25 articles with five observations in this systematic review so on average there are 5 publications per year. Publications in 2019 amounted to four articles. There was a consistency in the number of publications from 2017 to 2018 which was 5 articles, increased in 2020 to the 8 articles, and decreased again in 2021 to only 3 articles. A total of 25 articles reviewed came from 15 reputable international journals which were dominated by the *Journal of Financial Crime* (9 articles or 36%) and *The Academy of Strategic Management Journal* (2 articles or 8%). Based on a review of studies using primary data as listed in the second step, the dominant interest of researchers using the questionnaire method is 22 articles (88%), and a little interest in using interviews, which is only two articles (8%), as well as experiment 1 article (4%). Fraud is categorized into three, namely corruption, misappropriation of assets, and fraudulent financial statements known as the "fraud tree". Meanwhile, the fraud triangle theory is also used in the context of academic fraud committed by students, students, teachers, or lecturers. From 25 articles reviewed, as many as 13 articles (52%) are interested in combining the three elements of the fraud tree into a more general scope, in this study termed fraud in the general scope. While the researchers were interested in the category of academic fraud and asset misappropriation (4 articles or 16%), financial statements fraud (3 articles or 12%) and last one was

the most difficult type of fraud to be detected, namely corruption (1 article or 4%). The representation of the sample composition based on five fraud categories can be described in Table 2.

Table 2. Classification of research on fraud triangle theory in 25 articles reviewed

Category	N	%
Methods used		
Questionnaire	22	88%
Interview	2	8%
Experimental	1	4%
Type of data		
Qualitative	2	8%
Quantitative	23	92%
Type of fraud		
<i>Company scope</i>		
Corruption	1	4%
Asset misappropriation	4	16%
Financial statement fraud	3	12%
General scope	13	52%
<i>Scope of educational institutions</i>		
Academic fraud	4	16%

The first element of the fraud tree that always haunts the business world and causes controversy is fraud on financial statements. The cases of Enron and WorldCom are top examples of financial statement fraud scandals. Fraud in financial statements is carried out in various ways, such as improper capitalization of assets, intentional changes to accounting records, and manipulation of financial amounts by falsifying expenses and income. Managers are motivated to manipulate financial statements to achieve accounting targets (Ettredge et al., 2010) or to embellish the company's financial statements. The phenomenon related to organizational fraud must be observed by every organization to increase stakeholder trust (Suryandari et al., 2021).

The second element of the fraud tree is corruption. According to Burke et al. (2011), paying bribes to obtain contracts, insider trading, and individuals receiving money to adjust financial documents, are examples of corruption. In addition, Aguilera and Vadera (2008) define corruption as an abuse of power that benefits the perpetrator, utilizing extortion, conflict of interest, and bribery (ACFE, 2020).

Misappropriation of assets is another form of fraud. The perpetrator's drives such as the desire for success, greed, a high lifestyle, and high debt. Job pressures also contribute to aggravating conditions, such as failure to get promotions, lack of justice, low wages, job dissatisfaction, or lack of respect (Hillison et al., 1999). Perpetrators use fraud to steal or misappropriate organizational assets. In this case,

the perpetrator will benefit directly from taking certain assets from the organization. People who misappropriate assets are most likely customers, employees of the organization, or vendors of the organization. If these three elements of the fraud tree are compared, large companies usually focus more on the elements of corruption and fraud in financial statements, while smaller companies focus on asset misappropriation (N’Guilla Sow et al., 2018).

The fraud triangle theory has been proven to be widely accepted, as evidenced by the research conducted in nine different countries (Table 3). Most of the articles came from Malaysia (20%), Africa (16%), Indonesia (16%), and the USA (16%). There are relatively few articles from Vietnam (8%), the Czech Republic (8%), and Nigeria (8%) and fewer articles from Taiwan (4%), and Germany (4%). The publication of the article was dominated by the *Journal of Financial Crime* with the publisher Emerald, namely 9 articles (36%).

Table 3. Number of research locations related to the fraud triangle in articles by country

Country	Study location	
	N	%
Malaysia	5	20%
Africa	4	16%
USA	4	16%
Czech Republic	2	8%
Indonesia	4	16%
Vietnam	2	8%
Nigeria	2	8%
Germany	1	4%
Taiwan	1	4%
Total	25	100%

4.2. Content analysis: The usage, critics, and development of fraud triangle theory

The theory states that the need for situations where there are financial problems that cannot be shared, there are perceived opportunities and rationalizations to justify fraudulent actions in the minds of fraudsters to be able to commit fraud. Rae and Subramaniam (2008) argue that in some cases when there is good internal control, employees avoid control and commit fraud. It seems that the fraud triangle theory fails to accommodate other situational factors and personal characteristics of fraudsters (Cooper et al., 2013). However, the theory has been widely used as a practical tool in assisting fraud practitioners and auditors in assessing and responding to fraud risk (Hogan et al., 2008; Murphy et al., 2012; Wolfe & Hermanson, 2004). In addition, the model has been verified by empirical findings (Cohen et al., 2010; Kassem & Higson, 2012). Zuberi and Mzenzi’s (2019) research suggests that the modified fraud triangle should go beyond the original angle suggested by Cressey (1950) to include situational factors and other personal characteristics of the fraud perpetrator; most importantly, consideration of the interrelationships between factors.

From the 25 articles reviewed in this study, 20 out of 25 articles (80%) considered that the three components in the fraud triangle had equal weight, so they deserved to be used as variables in the study. While 12% (3 out of 25 articles) used only one element of the fraud triangle. While 4% (1 out of

25 articles) only focused on the pressure component because it was considered a core component of the fraud that occurred namely Santoso and Cahaya (2019). Meanwhile, there are 2 out of 25 articles (8%) that pay more attention to the weaknesses of internal control in committing fraud namely Le et al. (2021) and Nawawi and Salin (2018). Two other articles (8%) considered the rationalization component to be the most difficult component to measure, so it was not included as a variable in the study, namely Adeoti et al. (2021) and DuHadway et al. (2022). Meanwhile, from the research results, there are 15 out of 25 articles (60%) support the fraud triangle theory, where the three elements are considered to be the reason someone commits fraud. Meanwhile, 4 studies (16%) do not support that pressure is an element that causes someone to commit fraud. Then, 4 studies (16%) consider an opportunity to be unable to motivate someone to commit fraud, and there is even 1 study (4%) that states that rationalization is unable to motivate someone to commit fraud. The last but not the least, there is only one article that states that the three components in the fraud triangle are not the reason behind the occurrence of fraud. This is presented in Table 4.

Table 4. Elements of fraud triangle theory and research results

Element and results	N	%
Element		
1 element	3	12%
2 elements	2	8%
3 elements	20	80%
Total	25	100%
Results		
Support fraud triangle theory	15	60%
Not support pressure	4	16%
Not support opportunity	4	16%
Not support rationalization	1	4%
Not support fraud triangle theory	1	4%

Fraud triangle theory is indeed the most common framework used in the academic literature and has been adopted in auditing standards, such as SAS No. 99: Consideration of Fraud in a Financial Statement Audit. However, this theory still raises scientific debate because it is considered not yet well established to explain the fraudulent behaviour of individuals in organizations (Free & Murphy, 2015). Fraud triangle theory states that fraud occurs when there are three elements, namely pressure/motivation, opportunity and rationalization (Cressey, 1953). The first two is generally accepted as predictors of fraud (Hogan et al., 2008) and auditing standards provide detailed guidance on the existence of these two factors. However, the other side of the fraud triangle, namely rationalization, has received little attention from researchers (Hogan et al., 2008).

There are 11 articles (44%) trying to develop the fraud triangle theory by adding several elements including neutralization (Adeoti et al., 2021), ego/arrogance (Koomson et al., 2020; Mohamed et al., 2021), religiosity (Said et al., 2018), integrity (Mustafa Bakri et al., 2017), ethical values (Said et al., 2017), capability (Avortri & Agbanyo, 2020; Kazemian et al., 2019; Koomson et al., 2020; Mohamed et al., 2021), social norm and social trust (Al Shbail et al., 2022), accountability (Kartini, 2018), and the addition of gender, education, religious beliefs, and regulations (Akomea-Frimpong &

Andoh, 2020). The fraud triangle is recognized as a springboard for positive ideas in explaining the early warning signs of fraud (Dellaportas, 2013; Kranacher & Riley, 2019).

In addition, there are 8 articles (32%) that combine the fraud triangle theory with other relevant theories to strengthen the field of fraud, namely using an expansion of the fraud triangle theory, the fraud diamond theory (Kazemian et al., 2019; Koomson et al., 2020), fraud pentagon theory (Mohamed et al., 2021), social capital theory (Al Shbail et al., 2022), transaction cost economics theory (DuHadway et al., 2022), agency theory (Anindya & Adhariani, 2019; DuHadway et al., 2022), cognitive dissonance theory (Akomea-Frimpong & Andoh, 2020), and neutralization theory (Adeoti et al., 2021).

Table 5. Theories used in the 25 articles reviewed regarding fraud

<i>Name of theory</i>	<i>N</i>	<i>%</i>
Fraud triangle theory	25	100%
Fraud diamond theory	2	7,69%
Fraud pentagon theory	1	3,85%
Social capital theory	1	3,85%
Transaction cost economics theory	1	3,85%
Agency theory	2	7,69%
Cognitive dissonance theory	1	3,85%
Neutralization theory	1	3,85%

From the results of the review, it can be concluded that there is strong support from researchers for elements of the fraud triangle theory as a person's motivation in committing fraud. Furthermore, it is necessary to have an in-depth understanding of each element in this fraud triangle.

5. DISCUSSION

Overall, from the 20 articles that use the three elements of the fraud triangle theory, 15 articles empirically show that the theory is very good at explaining fraud. The results also show that the fraud triangle theory has received support from various kinds of literature, countries, and industries. The opportunity element is the fraud triangle element which is considered to have the biggest role in increasing fraud. From the 25 articles discussed, 24 articles use the opportunity as a determining element of fraud and with the results, 83.3% of articles (20 out of 24 articles) use the opportunity variable. It concluded that opportunity has a positive effect on fraud. The conclusion is in line with the results of Homer (2020). Moreover, among the three elements of the fraud triangle, rationalization is the most commonly missing component. It can be seen that 5 articles do not use rationalization as a determinant of fraud. This may be because rationalization is an internal process, and hence, rationalization is generally not observable (Albrecht et al., 2004). This finding is supported by the results of Homer (2020).

Albrecht et al. (2004) stress the importance of using the term "feel" when describing pressure or opportunity. Pressure or opportunity may not be real, and it depends only on the perception of the perpetrator. There are three types of pressure, namely personal pressure, work pressure, and external pressure. Zuberi and Mzenzi (2019) postulate that non-financial pressures are as important as financial pressures. Theories related to

fraud such as fraud triangle theory, fraud diamond theory, fraud pentagon theory, and fraud hexagon theory generally argue that when individuals find themselves in a situation that imposes financial/non-financial burdens on them, they tend to seek ways to solve their problems even to engage in fraudulent activities (Koomson et al., 2020). Empirically, the results are consistent with the evidence provided by several existing studies on fraud (Said et al., 2017).

Pressure induces evil in the first place (Hashim, 2020). Pressure drives fraudsters to take risks to obtain the resources they want (Hillison et al., 1999). In addition, some of the common attributes of those who commit fraud are that they often associate success with money, are very self-absorbed, and believe they are irresponsible. Other examples of signs are those who have lost a lot of money in stocks and those who are in debt from drug and gambling habits. A previous study by Kelly and Hartley (2010) supported the above findings by analysing three different occupational subgroups of workers (i.e., lower level, technical, and senior management) in the UK financial sector. Also, Hollow (2014) reports a significant difference between lower and more senior management positions in committing fraud violations in the workplace. Personal pressures (e.g., due to debt and gambling addiction) tend to be the motives for cheating lower-level employees whereas employees in higher positions tend to be motivated by job pressures (such as share ownership interests and performance-related incentives) or external pressures such as threats to company stability and the desire to help family or friends in financial difficulties (Hollow, 2014).

Moreover, pressure arises because of financial and non-financial incentives. The impetus for having personal debt, corporate losses, and market expectations include financial pressures, while greed, job dissatisfaction, or social and political pressures include non-financial pressures (Hollow, 2014). Dechow et al. (1996) suggest several motivations for earnings misstatements. These include incentive and compensation structures, pressure to meet analyst forecasts, poor performance, or the need for external financing. Efendi et al. (2007) found that when the CEO has a large number of stock options will increase the misstatement of financial statements. The company commits fraudulent financial statements to enhance its performance, regardless of the risks it will bear. In addition, companies experiencing financial difficulties have a higher probability of fraud.

On another hand, the opportunity is a weakness in the system where employees have the opportunity, strength, and ability to exploit and possibly commit fraud (Kassem & Higson, 2012). The weaker the organization's internal control system, the greater the opportunity to hide fraud (Abdullahi & Mansor, 2018). Opportunity is considered a method so which fraud can be carried out (Hashim, 2020). Individuals will look for loopholes to abuse the trust given to get out of their financial problems (Kranacher & Riley, 2019). People will take advantage of conditions if they feel there is a perceived opportunity. The opportunities perceived by perpetrators do not have to be real but they must believe that the risk of being caught is low (ACFE, 2020). There are assumptions such as bosses being unaware, no one will care, employees not

being checked often, and the belief that no one will take the behaviour as a serious offence (Sausser, 2007). The risk will increase the opportunity to commit fraud, including the type of industry or organization's operations, such as ineffective monitoring, weak internal control, the complexity of organizational structure and transaction procedures, and the presence of significantly related party transactions (Nguyen & Nguyen, 2020). Toms (2016) discusses a number of financial scandals from 1720 to 2009, a long-term historical perspective. The increasingly complex business environment has increased fraud and financial scandals in the United States and Britain over the last decade.

In fact, individuals who believe that their wrongdoing is important to do will be quicker to justify their actions and more prone to engage in fraudulent acts in the workplace (Koomson et al., 2020). Such mindsets develop in forming the basis for rationalizing their actions by understanding why they should misappropriate assets and maintaining their belief that they have done nothing wrong. Several studies on fraud provide empirical support for this result (Kazemian et al., 2019; Vousinas, 2019). Fraudsters can defend themselves by justifying the crime as an acceptable course of action. Some examples of rationalizing fraudulent behaviour include "I only borrowed money", "I have a right to the money" and "I have to steal to support my family" (ACFE, 2020). Some individuals see themselves as innocent and morally behaving and are forced to act unethically (Anand et al., 2004). We cannot read the mind of the perpetrator, so rationalization is difficult to observe (Hashim, 2020). Before committing unethical behaviour, the perpetrator rationalizes to be able to accept the action morally. Using India as a study context, Collins et al. (2009) found that top managers tend to pay bribes to get things done and believe that their actions are less likely to be exposed or punished. Next according to Anand et al. (2004), rationalization is accompanied by socialization tactics by inviting newcomers to participate in practising unethical actions with related rationalizations. Thus, companies need to hold regular discussions with employees about rationalization as a fraud prevention program (Hillison et al., 1999). The majority of fraudsters admit to being criminals and they believe they are good people caught in bad situations.

Subsequent research can make comparisons between industries in seeing the reasons someone commits fraud; this is to find out whether there are differences in industry characteristics that result in differences in fraudulent behaviour. In addition, subsequent research can also compare the Cressey study by examining studies before 1950 to see if there is a big difference in the reasons someone commits fraud before the discovery of the fraud triangle theory concept.

REFERENCES

1. Abdullahi, R., & Mansor, N. (2018). Fraud prevention initiatives in the Nigerian public sector: Understanding the relationship of fraud incidences and the elements of fraud triangle theory. *Journal of Financial Crime*, 25(2), 527-544. <https://doi.org/10.1108/JFC-02-2015-0008>
2. Adeoti, M. O. Shamsudin, F. M., & Mohammad, A. M. (2021). Opportunity, job pressure and deviant workplace behaviour: Does neutralisation mediate the relationship? A study of faculty members in public universities in Nigeria. *European Journal of Management and Business Economics*, 30(2), 170-190. <https://doi.org/10.1108/EJMBE-08-2017-0002>
3. Aguilera, R. V., & Vadera, A. K. (2008). The dark side of authority: Antecedents, mechanisms, and outcomes of organizational corruption. *Journal of Business Ethics*, 77(4), 431-449. <https://doi.org/10.1007/s10551-007-9358-8>

6. CONCLUSION

This research provides an overview of research gaps that are useful for future researchers. The main focus of this article is to find out the use and criticism of elements in the fraud triangle theory and the developments made in previous studies on elements of the fraud triangle theory. From the results of the analysis, the use of elements in the fraud triangle theory has been accepted by many countries where as many as 20 articles (80%) included in the sample use the three elements of the fraud triangle as components that are considered to influence someone in committing fraud. It means that most researchers have recognized the existence of these three elements which are considered important. In line with this, 15 articles (60%) resulted as the conclusion that the three elements of the fraud triangle theory were able to influence fraudulent acts committed by a person. Besides the acceptance of the three elements of fraud, on the other hand, there is a criticism given to the three elements which are considered not able to represent all the motivations behind the occurrence of fraud. Moreover, 11 articles (44%) added several elements to the fraud triangle theory element including neutralization, ego/arrogance, religiosity, integrity, ethical values, capability, social norm, social trust, accountability, and the addition of gender, education, religious beliefs, and regulations. It can be said that fraud triangle theory does not fail to describe the motivation of fraud but makes it a springboard for subsequent research to develop components that motivate fraud.

There are limitations inherent in this research. The first limitation is that limited sources were used in this research this research only used four digital libraries which are included in the top 15 digital libraries due to limited access. Subsequent research can use the digital library included in the top 5 in order to obtain high-quality articles. Second, this study tried to generalize the results of the research which consists of 25 research samples from nine countries. This might cause bias due to the presence of national cultural elements inherent in each country. Similarly, Homer's (2020) research suggests that it may not make sense to compare the fraudulent acts of one country to another because of the inherent differences between countries and cultures. Future research related to the fraud triangle can separate the object of research because the research samples are very varied so as to provide a more specific understanding related to each industrial sub-sector. This will contribute to understanding the fraud triangle theory.

4. Akomea-Frimpong, I., & Andoh, C. (2020). Understanding and controlling financial fraud in the drug industry. *Journal of Financial Crime*, 27(2), 337-354. <https://doi.org/10.1108/JFC-06-2019-0071>
5. Al Shbail, M. O., Alshurafat, H., Ananzeh, H., & Al-Msiedeen, J. M. (2022). Dataset of factors affecting online cheating by accounting students: The relevance of social factors and the fraud triangle model factors. *Data in Brief*, 40, Article 107732. <https://doi.org/10.1016/j.dib.2021.107732>
6. Albrecht, W. S., Albrecht, C. C., & Albrecht, C. O. (2004). Fraud and corporate executives: Agency, stewardship and broken trust. *Journal of Forensic Accounting*, 5, 109-130. <https://ruby.fgcu.edu/courses/cpacini/courses/common/fraudandcorporate.pdf>
7. Anand, V., Ashforth, B. E., & Joshi, M. (2004). Business as usual: The acceptance and perpetuation of corruption in organizations. *Academy of Management Executive*, 18(2), 39-53. <https://doi.org/10.5465/ame.2004.13837437>
8. Anindya, J. R., & Adhariani, D. (2019). Fraud risk factors and tendency to commit fraud: Analysis of employees' perceptions. *International Journal of Ethics and Systems*, 35(4), 545-557. <https://doi.org/10.1108/IJOES-03-2019-0057>
9. Ariyanto, D., Jhuniantara, I. M. G., Ratnadi, N. M. D., Putri, I. G. A. M. A. D., & Dewi, A. A. (2021). Detecting fraudulent financial statements in pharmaceutical companies: Fraud pentagon theory perspective. *Journal of Accounting*, 7, 1611-1620. <https://doi.org/10.5267/j.ac.2021.5.009>
10. Asmah, A. E., Atuilik, W. A., & Ofori, D. (2020). Antecedents and consequences of staff related fraud in the Ghanaian banking industry. *Journal of Financial Crime*, 27(1), 188-201. <https://doi.org/10.1108/JFC-03-2019-0034>
11. Association of Certified Fraud Examiners (ACFE). (2020). *Report to the nations 2020 global study on occupational fraud and abuse*. <https://acfe-public.s3-us-west-2.amazonaws.com/2020-Report-to-the-Nations.pdf>
12. Association of Certified Fraud Examiners (ACFE). (2022). *Occupational fraud 2022: A report to the nations*. <https://acfe-public.s3-us-west-2.amazonaws.com/2022+Report+to+the+Nations.pdf>
13. Avortri, C., & Agbanyo, R. (2020). Determinants of management fraud in the banking sector of Ghana: The perspective of the diamond fraud theory. *Journal of Financial Crime*, 28(1), 142-155. <https://doi.org/10.1108/JFC-06-2020-0102>
14. Becker, D., Connolly, J., Lentz, P., & Morrison, J. (2006). Using the business fraud triangle to predict academic dishonesty among business students. *Academy of Educational Leadership Journal*, 10(1), 37-54. <https://www.abacademies.org/articles/aeljvol10no12006.pdf>
15. Burke, R. J., Tomlinson, E. C., & Cooper, C. L. (2011). *Crime and corruption in organizations: Why it occurs and what to do about it* (1st ed.). Routledge. <https://doi.org/10.4324/9781315574776>
16. Cohen, J., Ding, Y., Lesage, C., & Stolowy, H. (2010). Corporate fraud and managers' behavior: Evidence from the press. *Journal of Business Ethics*, 95(2S), 271-315. <https://doi.org/10.1007/s10551-011-0857-2>
17. Collins, J. D., Uhlenbruck, K., & Rodriguez, P. (2009). Why firms engage in corruption: A top management perspective. *Journal of Business Ethics*, 87(1), 89-108. <https://doi.org/10.1007/s10551-008-9872-3>
18. Cooper, D. J., Dacin, T., & Palmer, D. (2013). Fraud in accounting, organizations and society: Extending the boundaries of research. *Accounting, Organizations and Society*, 38(6-7), 440-457. <https://doi.org/10.1016/j.aos.2013.11.001>
19. Cressey, D. R. (1950). The criminal violation of financial trust. *American Sociological Review*, 15(6), 738-743. <https://doi.org/10.2307/2086606>
20. Cressey, D. R. (1953). *Other people's money: A study of the social psychology of embezzlement*. Free Press. <https://psycnet.apa.org/record/1954-06293-000>
21. Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1996). Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research*, 13(1), 1-36. <https://doi.org/10.1111/j.1911-3846.1996.tb00489.x>
22. Dellaportas, S. (2013). Conversations with inmate accountants: Motivation, opportunity and the fraud triangle. *Accounting Forum*, 37(1), 29-39. <https://doi.org/10.1016/j.accfor.2012.09.003>
23. Dorminey, J. W., Fleming, A. S., Kranacher, M.-J., & Riley, R. A., Jr. (2010). Beyond the fraud triangle: Enhancing deterrence of economic crime. *The CPA Journal*, 80(7), 17-23. <https://www.proquest.com/docview/637276283>
24. DuHadway, S., Talluri, S., Ho, W., & Buckhoff, T. (2022). Light in dark places: The hidden world of supply chain fraud. *IEEE Transactions on Engineering Management*, 69(4), 874-887. <https://doi.org/10.1109/TEM.2019.2957439>
25. Efendi, J., Srivastava, A., & Swanson, E. P. (2007). Why do corporate managers misstate financial statements? The role of option compensation and other factors. *Journal of Financial Economics*, 85(3), 667-708. <https://doi.org/10.1016/j.jfineco.2006.05.009>
26. Ettredge, M., Scholz, S., Smith, K. R., & Sun, L. (2010). How do restatements begin? Evidence of earnings management preceding restated financial reports. *Journal of Business Finance & Accounting*, 37(3-4), 332-355. <https://doi.org/10.1111/j.1468-5957.2010.02199.x>
27. Free, C., & Murphy, P. R. (2015). The ties that bind: The decision to co-offend in fraud. *Contemporary Accounting Research*, 32(1), 18-54. <https://doi.org/10.1111/1911-3846.12063>
28. Handoko, B. L., & Aurelia, E. (2021). Fraud hexagon analysis for detecting potential fraudulent financial reporting in manufacture sector. In *Proceedings of the 8th International Conference on Management of e-Commerce and e-Government* (pp. 60-67). Association for Computing Machinery. <https://doi.org/10.1145/3483816.3483829>
29. Handoko, B. L., & Tandean, D. (2021). An analysis of fraud hexagon in detecting financial statement fraud (Empirical study of listed banking companies on Indonesia stock exchange for period 2017-2019). In *Proceedings of the 7th International Conference on e-Business and Applications* (pp. 93-100). Association for Computing Machinery. <https://doi.org/10.1145/3457640.3457657>
30. Hashim, H. A., Salleh, Z., Shuhaimi, I., & Ismail, N. A. N. (2020). The risk of financial fraud: A management perspective. *Journal of Financial Crime*, 27(4), 1143-1159. <https://doi.org/10.1108/JFC-04-2020-0062>
31. Hillison, W., Pacini, C., & Sinason, D. (1999). The internal auditor as fraud-buster. *Managerial Auditing Journal*, 14(7), 351-363. <https://doi.org/10.1108/02686909910289849>
32. Hogan, C. E., Rezaee, Z., Riley, R. A., & Velury, U. K. (2008). Financial statement fraud: Insights from the academic literature. *Auditing: A Journal of Practice & Theory*, 27(2), 231-252. <https://doi.org/10.2308/aud.2008.27.2.231>

33. Hollow, M. (2014). Money, morals and motives: An exploratory study into why bank managers and employees commit fraud at work. *Journal of Financial Crime*, 21(2), 174–190. <https://doi.org/10.1108/JFC-02-2013-0010>
34. Homer, E. M. (2020). Testing the fraud triangle: A systematic review. *Journal of Financial Crime*, 27(1), 172–187. <https://doi.org/10.1108/JFC-12-2018-0136>
35. Horwath, C. (2011). *The mind behind the fraudsters crime: Key behavioral and environmental elements* [PowerPoint slides]. Crowe Horwath. <https://tinyurl.com/2y42unj7>
36. Houdek, P. (2017). Professional identity and dishonest behavior. *Society*, 54(3), 253–260. <https://doi.org/10.1007/s12115-017-0132-y>
37. Huang, S. Y., Lin, C.-C., Chiu, A.-A., & Yen, D. C. (2016). Fraud detection using fraud triangle risk factors. *Information Systems Frontiers*, 19(6), 1343–1356. <https://doi.org/10.1007/s10796-016-9647-9>
38. Indarto, S. L., & Ghazali, I. (2016). Fraud diamond: Detection analysis on the fraudulent financial reporting. *Risk Governance and Control: Financial Markets & Institutions*, 6(4), 116–123. <https://doi.org/10.22495/rcgv6i4c1art1>
39. Kartini. (2018). Developing fraud prevention model in regional public hospital in West Sulawesi Province. *International Journal of Law and Management*, 60(2), 210–220. <https://doi.org/10.1108/IJLMA-04-2017-0095>
40. Kassem, R., & Higson, A. (2012). The new fraud triangle model. *Journal of Emerging Trends in Economics and Management Sciences*, 3(3), 191–195. <https://ssrn.com/abstract=2121206>
41. Kayani, U. N., De Silva, T.-A., & Gan, C. (2019). A systematic literature review on working capital management — An identification of new avenues. *Qualitative Research in Financial Markets* 11(3), 352–366. <https://doi.org/10.1108/QRFM-05-2018-0062>
42. Kazemian, S., Said, J., Nia, E. H., & Vakilifard, H. (2019). Examining fraud risk factors on asset misappropriation: Evidence from the Iranian banking industry. *Journal of Financial Crime*, 26(2), 447–463. <https://doi.org/10.1108/JFC-01-2018-0008>
43. Kelly, P., & Hartley, C. A. (2010). Casino gambling and workplace fraud: A cautionary tale for managers. *Management Research Review*, 33(3), 224–239. <https://doi.org/10.1108/01409171011030381>
44. Kitchenham, B., & Pflieger, S. L. (2002). Principles of survey research part 4: Questionnaire evaluation. *ACM SIGSOFT Software Engineering Notes*, 27(3), 20–23. <https://doi.org/10.1145/638574.638580>
45. Koomson, T. A. A., Owusu, G. M. Y., Bekoe, R. A., & Oquaye, M. (2020). Determinants of asset misappropriation at the workplace: The moderating role of perceived strength of internal controls. *Journal of Financial Crime*, 27(4), 1191–1211. <https://doi.org/10.1108/JFC-04-2020-0067>
46. Kranacher, M.-J., & Riley, R. (2019). *Forensic accounting and fraud examination* (2nd ed.). John Wiley & Sons.
47. Le, N. T. B., Vu, L. T. P., & Nguyen, T. V. (2021). The use of internal control systems and codes of conduct as anti-corruption practices: Evidence from Vietnamese firms. *Baltic Journal of Management*, 16(2), 173–189. <https://doi.org/10.1108/BJM-09-2020-0338>
48. Meiseberg, B., Ehrmann, T., & Prinz, A. (2017). “Anything worth winning is worth cheating for”? Determinants of cheating behavior among business and theology students. *Journal of Business Economics*, 87(8), 985–1016. <https://doi.org/10.1007/s11573-016-0842-4>
49. Mohamed, N., Zakaria, N. B., Nazip, N. S. B. M., & Muhamad, N. F. (2021). The influencing factors of employee fraud in Malaysian financial institution: The application of the fraud pentagon theory. *Academy of Strategic Management Journal*, 20(6S). <https://tinyurl.com/2p8py7b6>
50. Murphy, P. R., Free, C. W., & Branston, C. (2012). The role of ethical climate in fraud. In *Proceedings of the CAAA Annual Conference 2012*. <https://doi.org/10.2139/ssrn.1986989>
51. Mustafa Bakri, H. H., Mohamed, N., & Said, J. (2017). Mitigating asset misappropriation through integrity and fraud risk elements: Evidence emerging economies. *Journal of Financial Crime*, 24(2), 242–255. <https://doi.org/10.1108/JFC-04-2016-0024>
52. N'Guilla Sow, A., Basiruddin, R., Abdul Rasid, S. Z., & Husin, M. M. (2018). Understanding fraud in Malaysian SMEs. *Journal of Financial Crime*, 25(3), 870–881. <https://doi.org/10.1108/JFC-08-2017-0077>
53. Nawawi, A., & Salin, A. S. A. P. (2018). Internal control and employees' occupational fraud on expenditure claims. *Journal of Financial Crime*, 25(3), 891–906. <https://doi.org/10.1108/JFC-07-2017-0067>
54. Nguyen, H. T., & Nguyen, A. H. (2020). Audit expectation gap: Empirical evidence from Vietnam. *Journal of Asian Finance, Economics and Business*, 7(5), 51–60. <https://doi.org/10.13106/jafeb.2020.vol7.no5.051>
55. Nguyen, L. A., O'Connell, B., Kend, M., Thi Pham, V. A., & Vesty, G. (2021). The likelihood of widespread accounting manipulation within an emerging economy. *Journal of Accounting in Emerging Economies*, 11(2), 312–339. <https://doi.org/10.1108/JAEE-02-2020-0041>
56. Paseková, M., Helová, J., & Dolejšová, M. (2020). Fraud triangle from the perspective of accountants in the Czech Republic. *International Advances in Economic Research*, 26(4), 451–452. <https://doi.org/10.1007/s11294-020-09801-4>
57. Peterson, B. K. (2004). Education as a new approach to fighting financial crime in the USA. *Journal of Financial Crime*, 11(3), 262–267. <https://doi.org/10.1108/13590790410809194>
58. Rae, K., & Subramaniam, N. (2008). Quality of internal control procedures: Antecedents and moderating effect on organisational justice and employee fraud. *Managerial Auditing Journal*, 23(2), 104–124. <https://doi.org/10.1108/02686900810839820>
59. Rezaee, Z., Olibe, K. O., & Minnier, G. (2003). Improving corporate governance: The role of audit committee disclosures. *Managerial Auditing Journal*, 18(6–7), 530–537. <https://doi.org/10.1108/02686900310482669>
60. Said, J., Alam, M. M., Karim, Z. A., & Johari, R. (2018). Integrating religiosity into fraud triangle theory: Findings on Malaysian police officers. *Journal of Criminological Research, Policy and Practice*, 4(2), 111–123. <https://doi.org/10.1108/JCRPP-09-2017-0027>
61. Said, J., Alam, M. M., Ramli, M., & Rafidi, M. (2017). Integrating ethical values into fraud triangle theory in assessing employee fraud: Evidence from the Malaysian banking industry. *Journal of International Studies*, 10(2), 170–184. <https://doi.org/10.14254/2071-8330.2017/10-2/13>
62. Santoso, A., & Cahaya, F. R. (2019). Factors influencing plagiarism by accounting lecturers. *Accounting Education*, 28(4), 401–425. <https://doi.org/10.1080/09639284.2018.1523736>
63. Sauser Jr, W. I. (2007). Employee theft: Who, how, why, and what can be done. *SAM Advanced Management Journal*, 72(3), 13–25. <https://www.proquest.com/docview/231149956>

64. Simbolon, R., Elviani, S., Trisna, E., Simbolon, R. H. T., Safrida, & Nasution, U. (2019). The moderating effect of integrity on the relationship of triangle fraud elements and fraud: Evidence in Indonesia. *International Journal of Scientific and Technology Research*, 8(9), 1728-1732. <https://tinyurl.com/mvsupjnz>
65. Suryandari, N. N. A., Endiana, I. D. M., Susandya, A. A. B. A., & Apriada, K. (2021). The role of employee ethical behavior and organizational culture in preventing fraud at the LPD. *Palarch's Journal of Archaeology of Egypt/Egyptology*, 18(8), 916-929. <https://archives.palarch.nl/index.php/jae/article/view/8780>
66. Toms, S. (2016). Fraud and nancial scandals. In J. Wilson, S. Toms, A. de Jong, & Buchnea (Eds.), *The Routledge companion to business history* (1st ed.) (pp. 358-372). Routledge. <https://doi.org/10.4324/9780203736036>
67. Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a methodology for developing evidence-informed management knowledge by means of systematic review. *British Journal of Management*, 14(3), 207-222. <https://doi.org/10.1111/1467-8551.00375>
68. Vousinas, G. L. (2019). Advancing theory of fraud: The S.C.O.R.E. model. *Journal of Financial Crime*, 26(1), 372-381. <https://doi.org/10.1108/JFC-12-2017-0128>
69. Wolfe, D. T., & Hermanson, D. R. (2004). The fraud diamond: Considering the four elements of fraud. *CPA Journal*, 74(12), 38-42. <https://tinyurl.com/3hwsfdzp>
70. Zuberi, O., & Mzenzi, S. I. (2019). Analysis of employee and management fraud in Tanzania. *Journal of Financial Crime*, 26(2), 412-431. <https://doi.org/10.1108/JFC-01-2018-0012>

APPENDIX

Table A.1. Summary of sample characteristics (Part 1)

No.	Name	Title	Country	Theory used	Variable name	Fraud category	Method	Subject	Result
1	Le et al. (2021)	<i>The use of internal control systems and codes of conduct as anti-corruption practices: Evidence from Vietnamese firms</i>	Vietnam	Fraud triangle theory	Opportunity	Corruption	Questionnaire	Vietnamese company employees	Internal control (opportunity) does not affect bribery.
2	Nguyen et al. (2021)	<i>The likelihood of widespread accounting manipulation within an emerging economy</i>	Vietnam	Fraud triangle theory	Pressure opportunity rationalization	Financial statement fraud	Experiment	Corporate accountant	Pressure does not affect fraud while opportunity and rationalization have a positive effect on fraud.
3	Adeoti et al. (2021)	<i>Opportunity, job pressure and deviant workplace behaviour: Does neutralisation mediate the relationship? A study of faculty members in public universities in Nigeria</i>	Nigeria	Fraud triangle theory, theory of neutralisation	Pressure opportunity neutralization	Fraud in the context of corruption, asset misappropriation, and financial statements	Questionnaire	Lecturer	Opportunities and pressures affect fraud; neutralization moderates the influence between variables.
4	Hashim (2020)	<i>The risk of financial fraud: A management perspective</i>	USA	Fraud triangle theory	Pressure opportunity rationalization	Fraud in the context of corruption, asset misappropriation, and financial statements	Interview	CEO	The fraud triangle has a positive effect on fraud.
5	Said et al. (2018)	<i>Integrating religiosity into fraud triangle theory: Findings on Malaysian police officers</i>	Malaysia	Fraud triangle theory	Pressure opportunity rationalization religiosity	Asset misappropriation	Questionnaire	Police	The fraud triangle has a positive effect on asset misappropriation. Religiosity has a negative effect on asset misappropriation.
6	Koomson et al. (2020)	<i>Determinants of asset misappropriation at the workplace: The moderating role of perceived strength of internal controls</i>	Africa	Fraud triangle theory, fraud diamond theory	Pressure opportunity rationalization capability ego	Asset misappropriation	Questionnaire	Employees in various organizations	Fraud triangle, capability, and ego have a positive effect on fraud.
7	Anindya and Adhariani (2019)	<i>Fraud risk factors and tendency to commit fraud: Analysis of employees' perceptions</i>	Indonesia	Fraud triangle theory, agency theory	Pressure opportunity rationalization	Fraud in the context of corruption, asset misappropriation, and financial statements	Questionnaire	Employees in various industries	The fraud triangle does not affect fraud.
8	Simbolon et al. (2019)	<i>The moderating effect of integrity on the relationship of triangle fraud elements and fraud: Evidence in Indonesia</i>	Indonesia	Fraud triangle theory	Pressure opportunity rationalization	Fraud in the context of corruption, asset misappropriation, and financial statements	Questionnaire	Office executive in the Government	The fraud triangle has a positive effect on fraud.
9	Abdullahi and Mansor (2018)	<i>Fraud prevention initiatives in the Nigerian public sector: Understanding the relationship of fraud incidences and the elements of fraud triangle theory</i>	Nigeria	Fraud triangle theory	Pressure opportunity rationalization	Fraud in the context of corruption, asset misappropriation, and financial statements	Questionnaire	Accounting staff and internal auditor	The fraud triangle has a positive effect on fraud.

Table A.1. Summary of sample characteristics (Part 2)

No.	Name	Title	Country	Theory used	Variable name	Fraud category	Method	Subject	Result
10	Nawawi and Salin (2018)	<i>Internal control and employees' occupational fraud on expenditure claims</i>	USA	Fraud triangle theory	Opportunity	Fraud in the context of corruption, asset misappropriation, and financial statements	Questionnaire	Employee	Opportunity has a positive effect on fraud.
11	Meiseberg et al. (2017)	<i>"Anything worth winning is worth cheating for"? Determinants of cheating behavior among business and theology students</i>	Germany	Fraud triangle theory	Pressure opportunity rationalization	Academic fraud	Questionnaire	Student	Rationalization has a positive effect on fraud, pressure has a negative effect on fraud and opportunity does not affect fraud.
12	Mustafa Bakri et al. (2017)	<i>Mitigating asset misappropriation through integrity and fraud risk elements</i>	Malaysia	Fraud triangle theory	Pressure opportunity rationalization integrity	Asset misappropriation	Questionnaire	Royal Malaysian Police (RMP)	The fraud triangle has a positive effect on fraud, and integrity has a negative effect on fraud.
13	Said (2017)	<i>Integrating ethical values into fraud triangle theory in assessing employee fraud: Evidence from the Malaysian banking industry</i>	Malaysia	Fraud triangle theory	Pressure opportunity rationalization ethical value	Fraud in the context of corruption, asset misappropriation, and financial statements	Questionnaire	Bank employees	Ethical values have a negative effect on fraud while opportunity dan rationalization has a positive effect on fraud pressure does not affect fraud.
14	Akomea-Frimpong and Andoh (2020)	<i>Understanding and controlling financial fraud in the drug industry</i>	Africa	Fraud triangle theory, theory of cognitive dissonance	Gender education level religious beliefs regulatory measures pressure rationalization opportunities	Fraud in the context of corruption, asset misappropriation, and financial statements	Questionnaire	Drug Company Employees	Gender, education level, religious beliefs, regulations, pressure, rationalization, and opportunity affect fraud.
15	Kartini (2018)	<i>Developing fraud prevention model in regional public hospital in West Sulawesi province</i>	Indonesia	Fraud triangle theory	Pressure rationalization opportunity accountability	Fraud in the context of corruption, asset misappropriation, and financial statements	Questionnaire	Regional General Hospital Employees	The fraud triangle has a positive effect on fraud.
16	Kazemian (2019)	<i>Examining fraud risk factors on asset misappropriation: Evidence from the Iranian banking industry</i>	Malaysia	Fraud triangle theory, fraud diamond theory	Pressure opportunity rationalization capability	Asset Misappropriation	Questionnaire	Employee bank	Fraud diamond has a positive effect on fraud.
17	Asmah et al. (2020)	<i>Antecedents and consequences of staff related fraud in the Ghanaian banking industry</i>	Africa	Fraud triangle theory	Pressure opportunity rationalization	Fraud in the context of corruption, asset misappropriation, and financial statements	Interview	Employee bank	The fraud triangle has a positive effect on fraud.
18	Avortri and Agbanyo (2020)	<i>Determinants of management fraud in the banking sector of Ghana: The perspective of the diamond fraud theory</i>	Africa	Fraud triangle theory	Pressure opportunity rationalization capability	Fraud in the context of corruption, asset misappropriation, and financial statements	Questionnaire	Management Staffs Bank	Fraud diamond has a positive effect on fraud.

Table A.1. Summary of sample characteristics (Part 3)

No.	Name	Title	Country	Theory used	Variable name	Fraud category	Method	Subject	Result
19	DuHadway et al. (2022)	<i>Light in dark places: The hidden world of supply chain fraud</i>	USA	Theories of transaction cost economics, agency theory, fraud triangle theory	Supply chain monitoring, transactional complexity (opportunity), strong firm ties (opportunity), supply chain competitive pressure	Fraud in the context of corruption, asset misappropriation, and financial statements	Questionnaire	Supply chain employees	Supply chain monitoring (opportunity) has no effect on fraud, transactional complexity (opportunity), strong firm ties (opportunity) dan Supply chain competitive pressure (pressure) has a positive effect on fraud.
20	Mohamed et al. (2021)	<i>The influencing factors of employee fraud in Malaysian financial institution: The application of the fraud pentagon theory</i>	Malaysia	Fraud triangle theory, fraud pentagon theory	Pressure opportunity rationalization capability arrogance	Fraud in the context of corruption, asset misappropriation, and financial statements	Questionnaire	Employee bank	Fraud pentagon has a positive effect on fraud.
21	Al Shbail et al. (2022)	<i>Dataset of factors affecting online cheating by accounting students: The relevance of social factors and the fraud triangle model factors</i>	USA	Social capital theory, fraud triangle theory	Pressures opportunities rationalization social norms social trust	Academic fraud	Questionnaire	Student	Fraud triangle, social norms, and social trust affects fraud.
22	Santoso and Cahaya (2019)	<i>Factors influencing plagiarism by accounting lecturers</i>	Indonesia	Fraud triangle theory	Pressure	Academic fraud	Questionnaire	Lecturer	Pressure has a positive effect on fraud.
23	Paseková et al. (2020)	<i>Fraud Triangle from the perspective of accountants in the Czech Republic</i>	Czech Republic	Fraud triangle theory	Pressure opportunity rationalization	Financial statement fraud	Questionnaire	Public accountants and corporate accounting	Opportunity does not affect fraud, pressure and rationalization have a positive effect on fraud.
24	Huang et al. (2016)	<i>Fraud detection using fraud triangle risk factors</i>	Taiwan	Fraud triangle theory	Pressure opportunity rationalization	Financial statement fraud	Questionnaire	Lecturer, public accountant, and company manager	The fraud triangle has a positive effect on fraud.
25	Houdek (2017)	<i>Professional identity and dishonest behavior</i>	Czech Republic	Fraud triangle theory	Pressure opportunity rationalization	Academic fraud	Questionnaire	Student	The fraud triangle has a positive effect on fraud.