Financial Statement Fraud Detection: Synergy Artificial Intelligence with Auditor Characteristics

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Abstract: *The objective of this research is to analysis the effect of auditor characteristics that represented by professional scepticism and auditor experiences toward financial statement fraud detection through artificial intelligence in data analytic. This study builds upon previous research where respondents were auditors who had used big data analytics and incorporate artificial intelligence, specifically big data analytic as mediator between auditor characteristics and the detection of financial statement fraud. Quantitative research was used in this research by obtaining primary data through 66 respondents from auditor at several public accounting firms in the Jakarta area. Our findings reveal that auditor experience has direct influence effect on financial statement fraud detection while professional scepticism has no effect. But surprisingly, the role of artificial intelligence in data analytics is only able to mediate professional scepticism on financial statement fraud detection, while this does not apply to auditor experience. This study provides empirical evidence that the role of artificial intelligence, namely big data analytic, can act as a catalyst that transforms professional scepticism from mere doubt to evidence-based action, by enhancing the auditor's ability to identify data patterns and anomalies, reducing cognitive bias and increasing objectivity.*

Keywords*: Artificial intelligence, Auditor Experience, Big data analytics, Financial Statement Fraud; Professional skepticism*

1. Introduction

Financial statements are one of the basic considerations in making business decisions, so they are expected to be free from material misstatement either caused by error or fraud. However, based on Occupational Fraud 2024, issued by the Association of Certified Fraud Examiner (ACFE) shows that fraud schemes that occurred from January 2022 - December 2023 in various countries, showed that the financial statement fraud scheme had the largest loss impact of $766,000, compared to the asset misuse

scheme, amounting to $120,000 and the corruption scheme of $200,000. Financial reports are the object of the largest fraud scheme, this is because based on agency theory, each person will try to maximize their own interests with various means and innovations in achieving their interests (Mannuela & Kurniawati, 2024). For this reason, the external auditor as one of the independent parties entrusted with bridging the information asymmetries that arise in the agency relationship between the *principal* and the *agent*, is expected to detect financial statement fraud effectively.

In the era of information explosion, technology has the power to drastically change a number of complex sectors and business models, making it increasingly difficult for auditors to detect fraud by traditional method. To meet the increasing work demands, external auditors must synergize with technology, one of which is through the use of artificial intelligence. *Artificial Intelligence* is a branch of computer science and engineering that deals with the development or computers capable of reasoning, learning, and acting autonomously. *Artificial Intelligence* (AI) can significantly improve audit efficiency and cost-effectiveness. AI effectively reduces the likelihood of human error (Noordin et al., 2022). AI as a technology that resembles and reproduces human cognitive skills and judgment, is able to perform several assignments in an audit process, such as (1) performing analytical procedures; (2) assessing materiality; (3) assessing the control environment and evaluating internal control; (4) conducting risk assessments such as audit risk, detection risk, risk of misstatement caused by either fraud or error; (5) assessment of *going concern*; (6) prediction of company bankruptcy; (7) collecting audit evidence. Some *AI tools* that can be used in auditing include *Robotic Process Automation* (RPA), *machine learning algorithms*, *expert* systems, OPTC, *Natural Language Processing* (NLP), and *data analytics* (Mpofu, 2023). In today's digital era, data is a very valuable asset for a company (Huang et al., 2022). The rapid development of digital technology innovation produces large, fast and complex amounts of digital data originating from various sources of social networks, *smartphones*, sensors (Rahmani et al., 2021). *Big data* is a set of data, both structured and unstructured data, which generally describes volume, variety, speed, truth, variability, visualization, and value (Faroukhi et al., 2020; Gepp et al., 2016).

The synergy of auditor characteristics, in this case the professional attitude of skepticism and auditor experience mediated by *artificial intelligence* techniques in *big*

data analytics, is expected to be able to detect fraud patterns in today's digital era more effectively. High skepticism, which has a mindset to always question, be careful about the reliability of the information it receives, is a very important internal attribution in external auditors to improve the auditor's ability to detect financial statement fraud through the search for additional information needed (Y. Sari & Kurniawati, 2021; Wahidahwati & Asyik, 2022). In addition, auditor experience enriches the auditor's ability to detect fraud that occurs in an organization and can provide a better explanation than auditors who have less experience (Rafnes & Primasari, 2020). Auditor experience is described as a combination of knowledge and activities obtained by auditors through repeated interactions and communication with fellow humans (Wahyudi & Qintharah, 2023). The results of research related to professional skepticism on the detection of fraudulent financial statements conducted by (Akbar et al., 2022; Suriani et al., 2023) show that professional skepticism affects the detection of financial statement fraud, on the other hand the results of research (Rafnes & Primasari, 2020) show results that have no effect. Auditor experience studied by (Wahidahwati & Asyik, 2022) shows that experienced auditors have a positive effect on fraud detection, while the results of research (R. Sari & Andrian, 2023) show conflicting results.

There are still conflicting results related to professional skepticism on the detection of financial statement fraud, it is possible because auditors have a skeptical attitude but cannot obtain comprehensive data and evidence of suspected financial statement fraud plus it takes a long time if tracing with a traditional audit approach, especially in today's digital era. In addition, when the results of the study still show the ineffectiveness of auditor experience on the detection of financial statement fraud, it is because auditors find it difficult to detect patterns of fraud in data that is so large and rapidly changing, based only on previous experience. The use of traditional audit methods and *tools* such as CAATs and Microsoft Excel, is not appropriate to be able to analyze large data effectively and efficiently (Brown-Liburd et al., 2015; Hamdam et al., 2022). Therefore, there is a need for data analysis tools that can detect relationships between large and rapidly changing data to better exploit them (Rahmani et al., 2021). Artificial intelligence (AI) techniques such as machine learning and evolutionary algorithms, *search-based methods are* able to provide more precise, faster and scalable results in big data analysis. *Big Data analytics* is generated by automated tools and

techniques that analyze, model, and visualize data and can be used to perform a variety of audit procedures, including elements of risk assessment, control testing, substantive procedures. *Big Data analytics* refers to an activity of examining, cleaning, transforming and modeling large data to identify and communicate information and patterns to produce conclusions that are useful for supporting the basis for making a decision (Hezam et al., 2023). *Big data analytics* will allow auditors to find abnormal patterns and extract useful information from essential data or audited subjects through analysis, modeling and visualization of planning and execution of audit assignments (Mousa et al., 2022). The results of analytical data analysis can be presented in data visualization, which is represented in graphical form, which is one way to help find and understand trends, anomalies and patterns in the analyzed data. Data visualization allows auditors to create dashboards (a series of related graphics or visualizations) that can be used to tell a visual story related to the audit process that is passed from the planning stage, conducting risk assessments, and communicating audit findings to management and corporate governance (Wilson, 2024).

For this reason, this study aims to analyze the mediating role of *artificial intelligence-based big data analytics* in influencing professional skepticism and auditor experience on the detection of financial statement fraud.

1.2 Theoretical Framework & Hypothesis Development

Attribution Theory is a theory initiated by Fritz Heider which describes how individuals interpret an event and the background underlying individual behavior (Wahidahwati & Asyik, 2022). According to attribution theory, a person's behavior is influenced by internal and external factors. Internal factors are factors that are within the influence or control of a person such as motivation, personality, self-perception, and ability. As for external factors, a person's behavior is influenced by things that are beyond individual control such as the environment, situation, and social circumstances. Attribution theory is used as a rationale related to internal factors from within auditors who are able to find errors both accidentally (errors) and intentionally (fraud). In this study, the internal factors that are thought to contribute to the detection of fraud are professional skepticism and auditor experience, while the external factors are situations and the environment, namely technological advances, such as artificial intelligence.

Cognitive Fit Theory is a theory that prioritizes the fit between the task and the structure of a person's mental problems which then results in a cognitive effort and better performance (Karran et al., 2022). The theory proposed by Vessey in 1991 is applied in various fields, one of which is auditing. In relation to auditing, this theory underlies how auditors think, understand, and make decisions during the audit process. In conducting an audit, auditors need to develop professional skepticism. Cognitive processes help auditors to think critically, maintain an objective attitude and make judgments in uncertain situations. In addition, in the era of technology that produces very large and diverse data, decision making by auditors will be better when the individual is assisted by technology. Data analytic tools provide visual and text analysis so as to reduce cognitive errors and can reduce the risk of undetected material misstatements, especially fraud (Sihombing et al., 2023). Experience is one of the essential things in helping auditors carry out their duties. However, auditors still need a balance through continuous learning and openness to new information to avoid the trap of excessive self-confidence.

1.2.1 Professional Skepticism on Financial Statement Fraud Detection

In conducting audits, auditors are required to have professional skepticism or professional skepticism, which is an attitude that questions, is careful about situations or conditions that allow potential misstatements to occur, both intentional and unintentional through a critical attitude in evaluating the evidence obtained (IAPI, 2021). (Louwers et al., 2024) showed professional skepticism measurement scale, which developed by (Hurtt, 2010) include, questioning mind, suspension of judgement and search of knowledge. Professional skepticism needs to be maintained in conducting audits to reduce the risk of failure to detect unusual conditions that may be caused by fraud in it. Auditors who have a high skepticism attitude will be able to improve their ability to detect financial statement fraud through the search for additional information needed (Wahidahwati & Asyik, 2022). The results of research (Wahidahwati & Asyik, 2022) & (Citranagari, 2022) show that professional skepticism has a significant positive effect on the detection of financial statement fraud. Therefore, the first hypothesis proposed is as follows:

Ha_1: Professional skepticism has a significant positive effect on the detection of financial statement fraud.

1.2.2 Auditor Experience on Financial Statement Fraud Detection

Experienced auditors have more knowledge, expertise and learning when carrying out audit activities (Suriani et al., 2023). Auditors who have been in the audit world for a long time will have more experience, among others, in terms of examining accounting transactions and records, supporting documents for the preparation of financial statements to test accuracy and completeness. In addition, experienced auditors also have better professional development, more honed analytical thinking skills, better understanding of accounting regulations and standards, more familiarity with the characteristics of various industries, sharper in assessing business risks that may put pressure on clients to commit acts of financial statement fraud (Suriani et al., 2023). From the results of the description above, it can be concluded that the more experience the auditor has, the more he knows the causes of existing errors, both intentional and unintentional. The results of research (Iftinan & Sukarmanto, 2022; Santoso & Yanti, 2025; Suriani et al., 2023; Wahyudi & Qintharah, 2023) show that auditor experience has a positive effect on the detection of financial statement fraud. Therefore, the second hypothesis proposed is as follows

Ha_2: Auditor experience has a significant positive effect on the detection of financial statement fraud.

1.2.3 Big data analytics on Financial Statement Fraud Detection

Before the rapid advancement of technology as it is today, financial statement fraud detection was done traditionally, such as rule-based systems, statistical analysis, expertise systems, where such traditional methods have various disadvantages such as accuracy, speed and adaptability to changes in fraud patterns (Sathisha & Sowmya, 2023). For this reason, a more sophisticated and modern method of detecting financial statement fraud is needed. Data analytics is an activity of inspecting, cleaning, transforming and modeling large amounts of data to find and communicate useful information and patterns (for example, causal relationships and anomalies). The results of analysis using this analytical data will be able to improve the auditor's understanding of company operations and operational-related risks, including the risk of fraud and increase the potential for material misstatement in the financial statements (Wilson, 2024). (Mousa et al., 2022) explained that big data analytics provides benefits at all

stages of the audit process, starting from the client acceptance stage, planning stage, internal control system evaluation stage, preliminary analytical procedures, the process of determining the level of materiality and audit risk. The results of research (Aboud & Robinson, 2022; Handoko et al., 2022; Tang & Karim, 2019) show that data analytics has a significant positive effect on fraud detection.

Ha_3: Big data analytics has a significant positive effect on the detection of financial statement fraud.

1.2.4 The Effect of Professional Skepticism on Financial Statement Fraud Detection mediated by Big Data Analytic

Professional skepticism is generally a mindset that questions something. This question arises, among others, when there is a discrepancy between some information or data received by the auditor and the auditor's logical thinking. For this reason, the auditor needs to prove his doubts with strong evidence. Big data analytic technology helps auditors collect and analyze data thoroughly, so that auditors have more comprehensive data (Gepp et al., 2018) and also real time for later fraud detection analysis (Shoetan et al., 2024). Auditors can find unusual patterns or anomalies in financial transactions, which may escape the auditor's attention when done manually. Data visualization as a tool of big data analytics helps auditors in performing technical data analysis through the presentation and combination of a data set to find hidden patterns so that an important thought or finding can be found (Hamdam et al., 2022). In addition, the predictive capabilities of big data analytics help auditors identify high-risk areas and predict potential fraudulent behavior by recognizing deviations from supposed patterns (Shoetan et al., 2024). With a systematic and accurate data-based analysis process, it will be able to reduce subjective bias in auditor assessments, so that skepticism will be more objective and based on reliable evidence. Therefore, the fourth hypothesis proposed is as follows:

Ha_4: The effect of professional skepticism on the detection of financial statement fraud through big data analytics.

1.2.5 The Effect of Auditor Experience on Financial Statement Fraud Detection through Big Data Analytics

Auditor experience sharpens the auditor's intuition regarding risky areas, which are vulnerable to financial statement fraud. However, it should be realized that although

experience is valuable, experience can make auditors overconfident in their intuition, causing confirmation bias (Cassel et al., 2022; Elder et al., 2020). For this reason, a validation of the auditor's intuition is needed. Big data analytics can assist auditors in confirming (validating) or rejecting these previous initial guesses with empirical evidence obtained through analytic techniques. In addition, big data analytics will also help improve audit efficiency and effectiveness through an automated approach and accelerate the identification and response to potential fraud through rapid data processing and combining historical data with current data so that auditors can see patterns of fraud evolution and take more effective preventive action.

Ha_5: The effect of auditor experience on the detection of financial statement fraud through big data analytics.

2. Research Method

This research is quantitative research. The data used in this study is primary data, which is obtained by distributing questionnaires distributed to external auditors in the IAPI (Indonesian Public Accountants Association) directory located in Jakarta through online distribution by filling out a google form. This questionnaire is divided into two parts, the first part is for external auditors who have used data analytics, which contains statements designed to collect information related to professional skepticism, auditor experience, artificial intelligence in data analytics, and the auditor's ability to detect financial statement fraud. The statements are measured using a Likert scale with a scale of 1 to 4 points with information: 1 = Strongly Disagree (STS), 2 = Disagree (TS), 3 = Agree (S), and 4 = Strongly Agree (SS). The second section is intended for external auditors who have not used artificial intelligence-based data analysis. This section is an open-ended question that contains questions related to the perceptions of external auditors regarding the future impact of using AI in detecting financial statement fraud, the level of urgency of adopting AI-based software, the biggest obstacles have not used AI-based software such as big data analytics in the workplace. The variables in this study include professional skepticism and auditor experience as independent variables, big data analytics as a mediating variable and detection of financial statement fraud as the dependent variable. Professional skepticism is one of the important elements in the audit of financial statements because it is required in the audit of financial statements as

reflected in the auditing professional standards. Professional skepticism is an attitude that questions, is careful about situations or conditions that allow potential misstatements to arise, both intentional and unintentional, through a critical attitude in evaluating the evidence obtained (IAPI, 2021). This study uses indicators of professional skepticism such as: questioning mind, suspension of judgment, search of knowledge, interpersonal understanding, self-confidence, and self-determination (Sari & Kurniawati, 2021). Meanwhile, the indicators of auditor experience are as follows: length of time, number and complexity of tasks, client diversity, auditing expertise, and knowledge of auditing (Indriyani & Luqman Hakim, 2021). As mediation, data analytic indicators reflect big data analytic characteristics such as volume, variety, velocity, veracity, value, visualization, reducing cognitive error, judgment bias, and quality (Faroukhi et al., 2020). The indicators of financial fraud detection used in this study are understanding of the types of financial fraud & the ability to detect fraud (Natalia & Latrini, 2021).

3. Result & Discussion

3.1 Research Population & Sample

The research population is external auditors who work in the DKI Jakarta Wilayah Public Accounting Firm (KAP) registered in the Directory of Indonesian Public Accountants. By using purposive sampling technique where the criteria used are users of artificial intelligence in this case is data analytics in the audit process and has a minimum experience of 2 years, 66 respondents were selected, as listed in Table 1

Table 1. Research Sample

DESCRIPTION	AMOUNT
Number of questionnaires distributed	131
Number of returned questionnaires	105
Number of questionnaires that do not meet *data analytics* experience & user criteria	(39)
Number of questionnaires that can be processed	66

3.2 Respondent Profile

In this study 66 respondents came from Big Four KAP (EY, PwC, Deloitte and KPMG) as many as 49 respondents (74%) and the remaining 17 respondents (26%)

respondents came from Non-Big Four KAP. In addition, the respondents in this study were dominated by men as many as 43 respondents (65.15%) while the remaining 23 respondents (34.85%) were women. For the experience itself, 43 respondents (65.15%) had 2-3 years of work experience while 4-5 years were 12 respondents (18.18%), and above 5 years were 11 respondents (16.67%).

3.3 Descriptive Statistics

The following are the results of data processing that shows descriptive statistical analysis

Table 2. Descriptive Statistical Analysis

	N	Minimum	Maximum	Mean
SP	66	3.00	4.00	3.74
EXP	66	1.00	4.00	3.41
DA	66	2.00	4.00	3.71
FR	66	1.00	4.00	3.42

Source: processed data

Table 2 above can be described as follows:

1. The average value of respondents answering related statements related to professional skepticism (SP) is 3.74. This means that on average respondents answered strongly agree regarding the statements that explain professional skepticism.
2. The average value of respondents answering the statements related to experience (EXP) is 3.41. This shows that on average the respondents answered agree regarding the statements that explained the auditor's experience.
3. The average value of respondents answering statements related to data analytics (DA) is 3.71. This shows that on average the respondents answered strongly agree regarding the statements that explain data analytics.
4. The average value of respondents answering the statements related to the detection of financial statement fraud (FR) is 3.42. This shows that broadly speaking, the average respondent answers agree regarding the statements that explain the detection of fraudulent financial statements.

3.4 Analysis Method

Data analysis in this study uses latent variables, namely a variable that cannot be directly quantified, and therefore requires a number of indicators to reflect each of these

latent variables. For this reason, the analysis used is to use *Structural Equation Modeling* (SEM) with SmartPLS *software*. PLS-SEM analysis consists of two sub models, namely the *outer model* (measurement model) and *the inner model* (structural model). *The outer model* aims to assess the validity and reliability of the model while the *inner model* aims to predict the relationship between latent variables). In this study, each exogenous (independent) and endogenous (dependent) and mediating variable is a latent variable, namely professional skepticism (X1), auditor experience (X_2), *data analytics* (M), and detection of financial statement fraud (Y).

3.5 Validity Test

3.5.1 Testing the Measurement Model (*Outer Model*)

Measurement model testing in this study includes convergent validity test, discriminant validity test and reliability test.

3.5.1.1 Convergent Validity Test

Convergent validity testing uses the *loading factor* value, where an individual indicator meets is considered reliable if it has a correlation value above 0.7 (Ghozali, 2021). The following is the *loading factor* value for each indicator, where each statement item has a *loading factor* value above 0.7 as listed in table 3.

Table 3. Convergent Validity Test Results

	DA	EXP	FR	SP
DA1	0.733			
DA2	0.824			
DA3	0.851			
DA4	0.773			
DA5	0.815			
DA6	0.703			
DA7	0.769			
DA8	0.819			
DA9	0.860			
DA10	0.843			
EXP7		0.922		
EXP8		0.933		
EXP9		0.886		
EXP10		0.856		
FR1			0.852	

FR2	0.832	
FR3	0.865	
FR4	0.705	
FR6	0.777	
FR7	0.839	
SP5		0.763
SP6		0.768
SP8		0.738
SP10		0.824
SP11		0.793
SP12		0.729
SP13		0.773

Source: processed data

3.5.1.2 Discriminant Validity Test

Discriminant validity test is seen from the AVE square root value > correlation between latent constructs. Table 4 shows that the square root AVE of the DA, EXP, FR and SP constructs is higher than the correlation between other latent constructs, as seen in table 4.

Table 4. Discriminant Validity Test Results

	DA	EXP	FR	SP
DA	0.801			
EXP	0.458	0.900		
FR	0.580	0.636	0.814	
SP	0.489	0.530	0.487	0.770

Source: processed data

3.5.1.3 Reliability Test

Reliability test is carried out to prove the accuracy, consistency and accuracy of the instrument in measuring constructs (Ghozali, 2021). The reliability test was carried out with two events, namely *Cronbach's alpha* and *composite reliability*. The *rule of thumb* used to assess construct *reliability* is that the *composite reliability* and *Cronbach's alpha* values must be greater than 0.7. The reliability test results presented in table 5 show that the reliability value of each variable is above 0.7, so it can be concluded that all variables have a high level of reliability.

Table 5. Reliability Test

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
DA	0.938	0.946	0.947	0.641
EXP	0.922	0.936	0.944	0.810
SP	0.886	0.892	0.911	0.593
FR	0.897	0.903	0.921	0.662

Source: processed data

3.5.2 Structural Model Testing (*Outer Model*)

3.5.2.1 R-Square Test (R^2)

From the table the *R-Square* test results show that the *R-Square* value for the *analytic data* variable as a mediating variable is 0.294. This means that the effect of professional skepticism and auditor experience on *analytic data* is 29.4%. As for the variable of financial statement fraud detection (FR), *analytic data* on financial statement fraud detection is 51.6%, as presented in table 6.

Table 6. Outer Model Test Results

	R-Square
DA	0.294
FR	0.516

Source: processed data

3.5.2.2 Hypothesis Test

Testing the research hypothesis using *path analysis* with a significance level (α) = 5%. The results of hypothesis testing can be concluded as follows:

Table 7. Hypothesis Test Results

Hypothesis	*Path Coefficient*	*P-Values*
H1: Professional skepticism on the detection of financial statement fraud	0.094	0.380
H2: Auditor experience on the detection of financial statement fraud	0.432	0.000
H3: *Data analytics* on the detection of financial statement fraud (FR)	0.337	0.001
H4: Professional skepticism on the detection of financial statement fraud through *data analytics*	0.093	0.035
H5: Auditor experience on the detection of financial statement fraud through *data analytics*	0.115	0.051

Source: processed data

3.5.3 Discussion

3.5.3.1 The Effect of Professional Skepticism on Financial Statement Fraud Detection

The results showed that the first hypothesis was rejected, which was indicated by a significance value (*p-value*) of 0.380 higher than 0.05. This means that based on empirical studies it is stated that professional skepticism has no effect on the detection of financial statement fraud. Professional skepticism which refers to the auditor's ability to understand existing problems objectively, by promoting a questioning mind and conducting a critical evaluation at the appropriate level (Ranzilla et al., 2011). This may be because this skepticism is not strongly implemented by auditors because it is distorted by cognitive biases. One of them is the tendency for auditors to only use information at the beginning and use that information as an anchor or foundation for further information (Diolas, 2022). If this cognitive bias is not realized, it can cause a *false positive*, which is a situation where the auditor identifies a transaction, account or event as suspicious, for example having the potential for fraud, but in fact this is not the case. If this happens, of course, it will waste time and money. *False positives* can also occur when auditors are excessively skeptical. This can happen because the quality of data and information and evidence obtained is not good, for example: the quality of data is incomplete, inaccurate or not current (not *updated*).

3.5.3.2 The Effect of Auditor Experience on Financial Statement Fraud Detection

The results showed that the second hypothesis was accepted, which was indicated by a significance value (*p-value*) of 0.000 lower than 0.05. This means that based on empirical studies it is stated that auditor experience has a significant effect on the detection of financial statement fraud. Experienced auditors certainly have a certain amount of knowledge, understanding, and experience related to the client's industry, how to assess client risk, so that it will be easier to connect several events that occur and then collect and evaluate the necessary evidence. The longer the time span that has been used by an auditor in carrying out his duties, the more enriching the auditor's ability to detect fraud that occurs in an organization. The results of this study are in line with research (Wahidahwati & Asyik, 2022; Wahyudi & Qintharah, 2023)

3.5.3.3 The Effect of *Data Analytics* on Financial Statement Fraud Detection

The results showed that the third hypothesis was accepted, which was indicated by a significance value (*p-value*) of 0.001 smaller than 0.05, with a positive coefficient level of 0.337. This means that based on empirical studies, it shows that *big data analytics* has a significant effect on the detection of financial statement fraud. *Big data analytics* is closely related to *artificial intelligence*. In summary, *data analytics* is one part of *artificial intelligence* where the *tools* used in *big data analytics* use *artificial intelligence (Ikhsan et al., 2022). Big Data analytics* is an activity of inspecting, cleaning, transforming and modeling large amounts of data to find and communicate useful information and patterns (for example, causal relationships and anomalies). The results of analysis using this analytical data will be able to improve the auditor's understanding of company operations and operational- related risks, including the risk of fraud and increase the potential for material misstatement in the financial statements(Wilson, 2024). (Mousa et al., 2022) explained that *big data analytics* provides benefits at all stages of the audit process, starting from the client acceptance stage, planning stage, internal control system evaluation stage, preliminary analytical procedures, the process of determining the level of materiality and audit risk. The results of this study are also in line with research (Aboud & Robinson, 2022; Handoko et al., 2022; Tang & Karim, 2019) which shows that *data analytics* has a significant positive effect on detection.

3.5.3.4 *The Effect of Professional Skepticism on Detecting Financial Statement Fraud through Data Analytics*

The results showed that the fourth hypothesis was accepted, which was indicated by a significance value (p-value) of 0.035 smaller than 0.05, with a positive coefficient level of 0.093. This means that analytic data is able to mediate the effect of professional skepticism on the detection of financial statement fraud. In promoting professional skepticism, auditors must be objective in analyzing the evidence and information they receive. For this reason, auditors must reduce cognitive biases so that they can produce a stronger attitude of professional skepticism. Cognitive bias can occur when auditors tend to only use information at the beginning and use that information as an anchor or foundation for further information (Diolas, 2022). Therefore, auditors need artificial intelligence technology including data analytics to inspect, clean, transform and model

large amounts of data to find and communicate useful information and patterns (for example, causal relationships and anomalies). The results of this analysis using data analytics will be able to improve the auditor's understanding of company operations and operational-related risks, including the risk of fraud and an increase in the potential for material misstatement in the financial statements (Wilson, 2024). The importance of *data analytic* techniques in the audit process allows auditors to gain a deeper view of client data and reduce cognitive bias, but at the same time creates a challenge for auditors in applying skepticism to the data generated from these technologies (Barr-Pulliam et al., 2024)

3.5.3.5 The Effect of Auditor Experience on Financial Statement Fraud Detection through *Data Analytics*

The results showed that the fifth hypothesis was rejected as indicated by a significance value (*p- value*) of 0.051 higher than 0.05, with a positive coefficient level of 0.115. This means that *analytic data* cannot mediate the effect of auditor experience on the detection of financial statement fraud. This may be due to auditors not being too skilled or reluctant to explore too deeply the use of *data analytic* technology so that the results are not as expected. In addition, although the use of *data analytics* has advantages, among others, in terms of data complexity and speed, this does not mean that it can eliminate all cognitive biases. Cognitive bias that may arise from the use of *data analytics* is *automation bias*, which is a tendency for auditors to trust the output generated from the system even when faced with evidence that is contradictory or contrary to human reasoning. Excessive trust in technological systems is not a good thing, because it can ignore previous experiences. Even though *big data analytics* is a sophisticated technology, there may be a condition where the auditor's experience provides context and professional judgment that cannot be fully replaced by *big data analytics*. In other words, professional judgment obtained through training, knowledge and experience during the engagement period (Setiadarma & Kurniawati, 2024) must still be used in analyzing the results of *big data analytic* processing.

3.5.3.6 Analysis of the use of *data analytics* from the perspective of external auditors who have not used/utilized *artificial intelligence.*

The 21 respondents who have not used *artificial intelligence*, such as *big data analytics*, were asked several open-ended questions, the answers to which can be summarized as follows:

a. The average respondent who has not used *artificial intelligence* such as *data analytics* states that they have sufficient understanding of the concept of *artificial intelligence* and states that the use of *artificial intelligence* from the knowledge they get has an impact on the detection of financial statement fraud. The impacts include time efficiency, processing data and helping to observe unusual transactions (anomalies), risk prediction, classification, providing a population overview of data, helping to analyze correlations between accounts.
b. The average respondent who has not used *artificial intelligence* (such as *data analytics*) in their audit process stated that the use of *artificial intelligence* is actually quite *urgent to* be applied in the audit process. However, various obstacles faced such as investment in the use of technology which is quite large, lack of adequate resources who understand *artificial intelligence*, limited technological infrastructure, privacy and data security, the application of technology that has not been comprehensive at the client, are the reasons for the use of *artificial intelligence*. In addition, there are also those who argue that they still trust the *professional judgment of* experienced auditors.

4. Conclusion , Implications and Limitations

From the results of the study, it can be concluded that of the auditor's own characteristics, what has a direct influence on the detection of fraudulent financial statements is the auditor's experience compared to professional skepticism. This is because the auditor's experience can help the auditor to detect more accurately the possibility of fraud in the financial statements through a correct understanding of the client's industry and its risks. Meanwhile, too much skepticism can make the audit process efficient, plus if it turns out that what was suspected turned out after further investigation was not proven. However, it turns out that the synergy of professional skepticism through *artificial intelligence*, in this case *big data analytics*, is proven to be

able to lift professional skepticism in a more appropriate direction through processing and analysis of *big data analytic* tools, so that it can affect the detection of financial statement fraud. But interestingly, the auditor's experience, which previously had a direct effect on the detection of financial statement fraud, turned out to have no effect when through data analytic mediation. Of course this is an interesting thing to investigate further. There are several possibilities that cause this to happen, there could be differences between the *judgment of* experienced auditors and the results of the analysis of *big data analytics*. If the difference is not analyzed properly, it will give the wrong conclusion. This research still cannot reach auditors who *use artificial intelligence* more broadly due to time constraints. In addition, the *artificial intelligence* observed here is still limited to the use of *big data analytics* only. Therefore, for future research, it is also expected to observe the use of other *artificial intelligence* such as *robotic process automation* (RPA), *machine learning*, *natural language processing* (NLP).

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