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RESPONSIBLE AI AND HUMAN-CENTERED DESIGN: BRIDGING ETHICS AND INNOVATION

ARTIFICIAL INTELLIGENCE FOR FRAUD RISK ASSESSMENT IN AUDITING

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Abstract: This study examines the role of Artificial Intelligence (AI), specifically ChatGPT, in enhancing auditors' fraud risk assessments by mitigating the dilution effect. The dilution effect occurs when irrelevant information reduces the weight of relevant diagnostic evidence, thereby lowering the accuracy of auditors' judgments. Using a 2×2 between-subjects experimental design, data were collected from 66 professional auditors enrolled in IAPI's PPL program. The independent variables were information type (relevant vs. relevant + irrelevant) and AI use (without vs. with ChatGPT). Independent t-tests were used to compare group means, while a two-way ANOVA was used to test for interaction effects. Results show that the dilution effect significantly decreased auditors' fraud risk assessments when irrelevant information was present without AI support. However, when ChatGPT was used, differences between relevant-only and combined conditions became insignificant. This indicates that ChatGPT effectively neutralized the dilution effect, helping auditors focus on relevant evidence. These findings highlight the potential of AI to mitigate cognitive biases in auditing and enhance decision-making accuracy. The study provides empirical contributions by integrating behavioral auditing research with AI applications, while also offering practical implications for auditors, firms, and regulators in strengthening fraud detection within the digital transformation era.

Keywords: Artificial Intelligence, ChatGPT, Fraud Risk Assessment, Dilution Effect, Audit Judgment

1. Introduction

Modern audits have evolved towards more sustainable practices. They are adaptive to technology, one of which is through the application of artificial intelligence in the audit process with an approach called co-pilot audit. This approach explains that Artificial Intelligence (AI) technology does not aim to replace the auditor but rather acts as a companion or co-pilot that assists the auditor in completing audit tasks more efficiently, accurately, and in-depth. The role of audit co-pilots has been proven can improve the auditor's effectiveness, accuracy, and analytical depth (Gu et al., 2023). AI has also been shown to improve data accuracy, support financial reporting, risk management, and strategic decision-making through predictive analytics and more efficient audit planning (Ahmad, 2024; Calado & Veloso, 2025; Edeigba, 2025; Munoko et al., 2020). In addition, AI is also able to detect potential fraud (Hidayat & Lindrianasari, 2025).

Populix's survey reveals that the adoption of artificial intelligence (AI) in Indonesia is on the rise, with 45% of workers and employers already incorporating it into their activities. Among the various applications available, ChatGPT is the most widely used AI platform, at 52%, far surpassing other applications such as Copy.ai (29%), Luminar AI (18%), and Oracle (15%) (Annur, 2023). ChatGPT adoption shows an increasing trend globally with India reaching 92% and the United States rising to 72% by 2024 (DeskTime, 2025). This development indicates a

growing acceptance of AI, which has the potential to enhance efficiency and drive digital transformation across various sectors.

In Indonesia, AI adoption has a strategic role not only for the audit profession but also for the dynamics of developing countries that are facing the demands of regulatory modernization, improved governance quality, and the push towards digital transformation. Indonesia, as one of the largest markets in Southeast Asia, can be an important laboratory to test how AI, especially ChatGPT, can be a tool to support professions such as auditors in improving the quality of judgment. The results of the study in Indonesia also show that auditors with a high level of intelligence and the ability to utilize AI-based technology tend to be more effective in carrying out their professional roles (Kuncoro et al., 2023). However, this effectiveness is inseparable from the challenges faced by auditors in practice. SA 240 states that auditors must obtain information from various parties to identify the risk of material misrepresentation caused by fraud (IAPI, 2021). The phenomenon of evaluation of audit evidence, called the averaging effect, states that a set of relevant evidence is considered less robust than a single convincing piece of evidence. These findings indicate the potential for cognitive bias in the audit decision-making process, although audit standards require auditors to rely on adequate and appropriate evidence. (Lambert & Peytcheva, 2020)

The development of technology and Big Data has made the flow of information received by auditors increasingly diverse and comes from various sources, both in the form of relevant and irrelevant information. Accountants through their competencies are expected to play an important role in Big Data information governance (Coyne et al., 2018). Among several factors that can reduce the accuracy of auditors in assessing the risk of fraud are the dilution effect, a phenomenon where auditors consider irrelevant information in the judgment process, thereby lowering the quality of the audit (Eilifsen et al., 2019; Granger et al., 2017). Other studies have even mentioned that internal auditors' skepticism can be influenced by biased external information, such as a picture of the nature of management (Giordano & Victoravich, 2025).

Irrelevant information has the potential to reduce the weight of relevant information and should be the focus of the auditor, thus negatively impacting the accuracy of fraud risk assessment (Giordano & Victoravich, 2025). This condition can weaken auditors' skepticism and the objectivity of judgments (Gardner et al., 2019). Moreover Auditors also tend to provide modified audit opinions when companies gain greater attention on social media (Liu et al., 2025). An excessive information load, comprising both relevant and irrelevant information, can reduce the quality of auditors' judgment because it increases cognitive load (Bidang(Chadd et al., 2021).

In facing these challenges, the use of AI technology is a potential solution. Auditors who use AI are able to filter out irrelevant information, thereby reducing bias in their assessments(Lombardi, 2023). AI also has great potential in assisting forensic audits (Malladhi, 2023). Among the various AI tools available, ChatGPT has demonstrated significant potential in enhancing the analytical and assessment capabilities of auditors. Research shows that the use of ChatGPT can improve the quality and accuracy of audits (Gu et al., 2023). GPT technology is designed to understand human language and provide human-like answers (Ekin, 2023).

This study uses a 2 x 2 experimental design with two main factors, namely: (1) the type of information received by the auditor (relevant information only vs. relevant information plus irrelevant information), and (2) the use of artificial intelligence (using ChatGPT vs. not using ChatGPT) in the context of fraud risk assessment. Participants in this study are a number of auditors who participated in the online Continuing Professional Education (PPL) program organized by the Indonesian Institute of Public Accountants (IAPI). The primary objective of

this study was to investigate the differences in fraud risk assessments among the four groups of auditors: the first group received only relevant information. In contrast, the second group received relevant information accompanied by irrelevant information to identify the possibility of dilution effects. The third group of auditors, who received relevant information, was asked to conduct a fraud risk assessment without the help of ChatGPT. In contrast, the fourth group received relevant and irrelevant combination information, assisted by ChatGPT.

The novelty of this research lies in the integration of cognitive aspects, namely the dilution effect and the use of AI, namely ChatGPT, in the context of fraud risk assessment by professional auditors. The literature on AI in auditing generally focuses on aspects of efficiency, fraud detection, and compliance. To date, there remains a lack of empirical research examining whether AI-based tools, such as ChatGPT, can mitigate or exacerbate the dilution effect in the audit decision-making process. Previous research on AI has focused only on audit effectiveness but has not examined how AI interacts with auditor cognitive bias or the dilution effect (Bao et al., 2020; Fedyk et al., 2022; Gu et al., 2023; Kokina et al., 2025; Qatawneh, 2025; Vasarhelyi et al., 2023). Meanwhile, studies on the dilution effect emphasize more on cognitive bias in auditor judgment, but have not integrated AI (Eilifsen et al., 2019; Giordano & Victoravich, 2025; Nickell et al., 2022). ChatGPT research topics that are still general and have not been tested in the context of auditor judgment (Biancone & Chmet, 2024; Bouziane, 2025; Calado & Veloso, 2025; Edeigba, 2025; Emett et al., 2025; Zhao & Wang, 2024).

This research makes a significant contribution to both the theoretical and practical realms. From a theoretical perspective, this study expands the cognitive framework in auditor judgment by integrating the phenomenon of the dilution effect within the context of information processing, while associating it with the theory of technology adoption in audit practice. The integration enriches the existing literature by providing a more comprehensive understanding of the interaction between cognitive bias and new technologies in influencing audit quality. From a practical perspective, the findings of this study are expected to have real implications for regulators, such as the Indonesian Institute of Public Accountants (IAPI) and the Financial Services Authority (OJK), especially in strengthening professional standards and audit training frameworks in the era of digital transformation. In addition, this research also provides insights for audit technology providers in developing AI-based tools, such as ChatGPT, that cater to the professional needs and ethics of auditors. Thus, this research presents significant applied value for policy development, professional regulation, and innovation in audit technology.

2. Literature Review

Cognitive Theory in Audit Decision-Making

Cognitive theory explains how individuals process information, form judgments, and make decisions based on their cognitive capacity and attentional limitations. In the context of auditing, auditors are required to filter various types of information, both relevant and irrelevant, to produce accurate assessments of fraud risk. From a cognitive perspective, auditors' decisions are strongly influenced by how the mind filters and weighs evidence (Sweller, 2019). One phenomenon arising from cognitive limitations is the dilution effect, which refers to the tendency of auditors to reduce the weight of relevant information when irrelevant information is also present (Tetlock et al., 1989). This suggests that the presence of non-diagnostic information disrupts auditors' cognitive focus, leading to less accurate judgments. In this study, cognitive theory is applied to explain how the use of Artificial Intelligence (AI), particularly ChatGPT, can help auditors reduce cognitive load. ChatGPT

functions as a cognitive aid by highlighting relevant information and minimizing the distraction caused by irrelevant data. The findings show that with AI support, the dilution effect can be neutralized, as auditors are better able to focus their attention on diagnostic evidence. Thus, cognitive theory supports the conclusion that AI technology has the potential to improve the accuracy of auditors' judgments by mitigating cognitive bias.

The Effect of Dilution on Fraud Risk Assessment.

Auditors in the audit process receive a huge volume of information, and the amount of information has been increasing since the adoption of Big Data in audit practices (Eilifsen et al., 2019). However, not all the available information is diagnostic or relevant to audit risk assessments. This condition poses a cognitive challenge for auditors in distinguishing important information from irrelevant information (Chadd et al., 2021). When auditors receive irrelevant information, they have the potential to experience a dilution effect, which is a condition where irrelevant information weakens the influence of relevant information, thereby reducing the accuracy of fraud risk assessment (Eilifsen et al., 2019; Favere-Marchesi & Pincus, 2006). Other research has also shown that irrelevant information can weaken moral judgment through the dilution effect, which is the reduced weight given to important information when it is mixed with additional information. The same is true for auditors, where the presence of irrelevant information can reduce the accuracy of fraud risk assessments (McHugh & Igou, 2025). One form of non-diagnostic information is the seemingly benign attitude of client management that often undermines fraud risk assessments. Although the evidence found on the client suggests indications of fraud. This means that the auditor's professional skepticism is also insufficient to mitigate the dilution effect (Nickell et al., 2022). Previous research has shown that irrelevant information can influence auditors' assessments of a particular condition or subject, but these influences are not always consistent and are often context-dependent. Information is irrelevant, for example, a person's image in the public eye, where leadership with a good image tends to have a lower risk of fraud than leadership with a bad image (Zakir & Koch-Bayram, 2022). Similar research refers to it as interpersonal affectation, where auditors' feelings towards clients are perceived as irrelevant forms of information that have a dilutive effect. The dilution effect was found in less experienced auditors and those who lacked accountability (Schafer & Schafer, 2019). Less skeptical auditors can also be influenced by irrelevant information, such as A Description of the Cheerful Nature of Management (Giordano & Victoravich, 2025).
Research on conjecture Corporate Social Irresponsibility (CSI) reported in the media can increase auditors' risk perception of clients, as negative news reinforces non-financial risk indicators and lowers auditors' confidence in management integrity (Frost et al., 2022; Liu et al., 2025). In the context of dilution effects, this phenomenon suggests that auditors' perceptions are heavily influenced by irrelevant information from outside the financial statements, so that additional information, both positive and negative, has the potential to weaken or strengthen the auditor's focus on actual diagnostic evidence. The dilution effect actually weakens the weight of relevant evidence because it is mixed with irrelevant information. This means that auditors affected by the dilution effect tend to give a lower risk assessment of fraud, despite strong evidence of fraud. Therefore, understanding strategies to reduce the dilution effect in fraud risk assessment is critical. Based on this description, the hypothesis of this research is formulated as follows :

H1: Auditors who are exposed to dilution effects will provide a lower risk assessment of fraud to the client's business environment than auditors who are not exposed to dilution effects

Artificial Intelligence and Auditor Fraud Risk Assessment

Artificial intelligence technologies, such as ChatGPT, have expanded auditors' analytical capacity in the context of modern audits, which has the potential to increase the effectiveness and efficiency of fraud risk assessments. A number of studies show that the use of ChatGPT can improve auditors' judgment by speeding up analysis (Bouziane, 2025), improve the quality of internal audits (Pandey et al., 2024), as well as helping to maintain the auditor's perception of objectivity (Libby & Witz, 2024). In fact, the implementation of ChatGPT in audit practices at companies such as Uniper has been proven to increase efficiency by up to 50–80 percent in various stages of audits, ranging from preparation to field implementation and reporti (Emett et al., 2025). In general, AI in audits has been proven to improve quality and efficiency, especially through anomaly detection, risk assessment, and optimization of the role of human auditors (Fedyk et al., 2022). The adoption of AI by four international accounting firms in Nigeria also demonstrates increased productivity, efficiency, and audit effectiveness Bidang, (Oluyombo & Ajakaiye, 2024).

Auditors who are vulnerable to the dilution effect, which is irrelevant information that obscures the influence of relevant information that should be the main focus of the assessment of fraud risk (Eilifsen et al., 2019; Favere-Marchesi & Pincus, 2006). The role of AI, such as ChatGPT, can be to correct or improve fraud risk assessment. The use of decision aids can reduce the dilution effect when auditors assess the risk of fraud (Wood, 2012). In the context of this study, the decision tool is represented by ChatGPT. Results from this research on fraud have shown that artificial intelligence (AI) can be used to detect anomalies within normal data. This concept is in line with the use of ChatGPT in identifying and emphasizing information that is relevant to auditors, while filtering out irrelevant information, thus potentially reducing the dilution effect in audit decision-making (Bao et al., 2020). Therefore, AI as an audit co-pilot is not a substitute for the auditor, so critical interaction is needed that combines algorithmic analysis and professional assessment of auditors (Gu et al., 2023).

Previous research on AI, including ChatGPT, is effective in detecting fraud and improving audit quality, but none have directly tested whether AI can reduce the dilution effect of auditors in fraud risk assessment (Bao et al., 2020; Bouziane, 2025; Emett et al., 2025; Qatawneh, 2025). Thus, this study not only examines the effect of dilution, but also examines the role of AI in reducing this bias. This interaction is crucial in determining whether AI technologies, such as ChatGPT, can reduce or exacerbate the dilution effect in fraud risk assessments. Based on this description, the hypothesis of this research is formulated as follows :

H2: When fraud occurs and auditors are affected by the dilution effect, auditors who use ChatGPT are more likely to adjust risk assessments compared to auditors who do not use ChatGPT

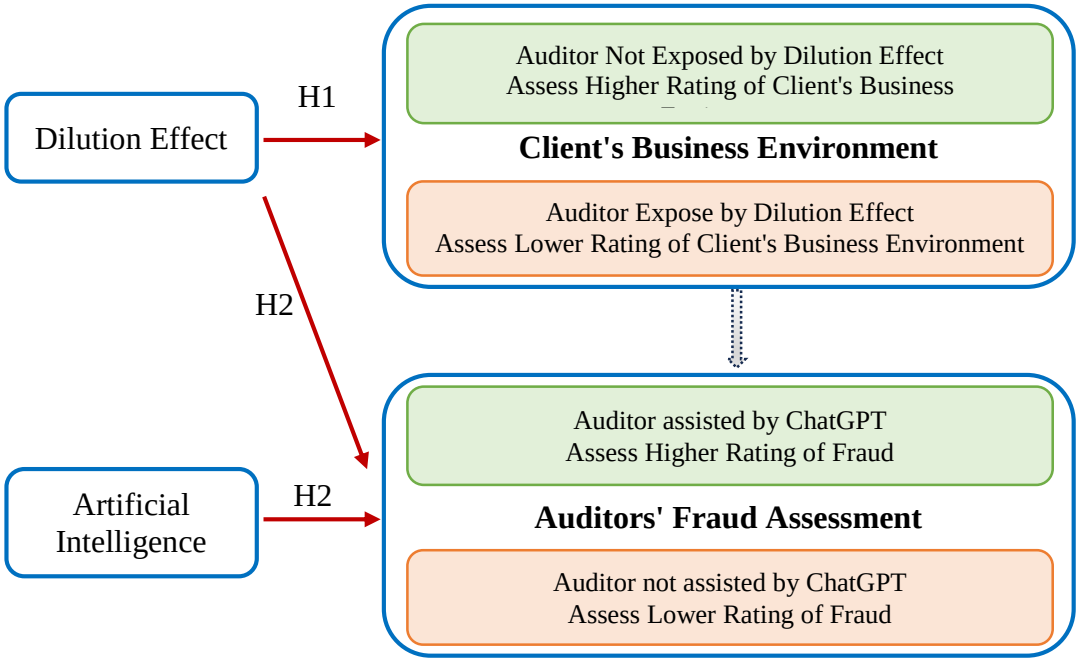

Figure 1 : Research Model

3. Method

Participants

This study involved 66 auditors from various Public Accounting Firms, with the majority being junior and senior auditors who are active in professional practice. The demographic characteristics in Figure 2 indicate that most participants are in the productive age stage. This composition provides a representative overview of the profile of young and mid-sized auditors in Indonesia, especially in the context of technology application and professional decision-making.

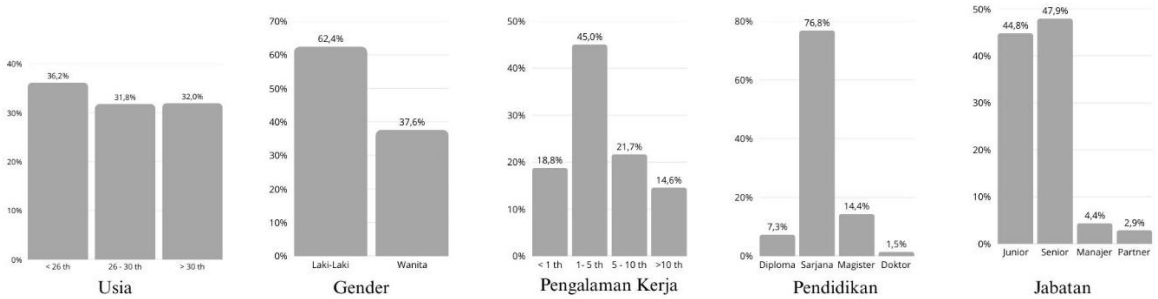

Figure 2: Respondent Demographic Data

Research Design

This study uses an experimental design. The independent variables in this study are (1) the type of information and (2) the use of ChatGPT. These two variables were manipulated by applying different levels of each variable to assess their impact on the dependent variable. Through such manipulation, a causal relationship can be shown. The dependent variable in this study is the auditor's assessment of fraud risk.

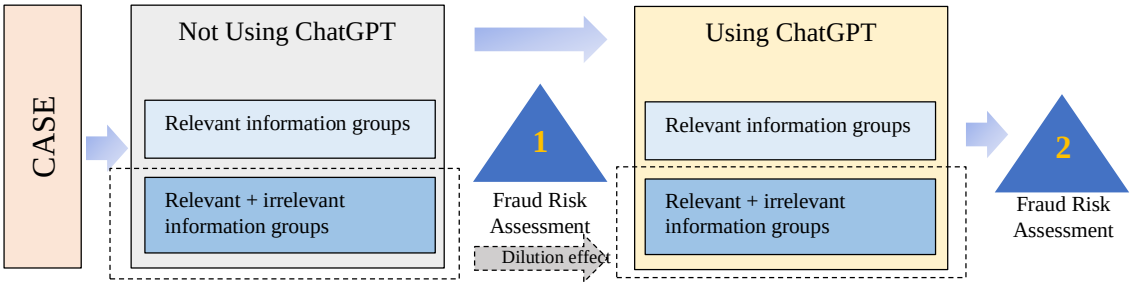

Figure 3: Experimental Treatment Scheme for Respondents

The dilution effect was manipulated by randomly dividing participants into two treatment conditions, namely (1) the participant's condition of receiving only relevant information (non-dilution effect), and (2) the participant's condition of receiving a combination of relevant and irrelevant information (dilution effect). For research purposes, a vignette is used, which is a scenario in the form of a brief description of something that is formed by combining random characteristics and can be modified by the researcher (Karpinska et al., 2011).

Manipulation of relevant and irrelevant information adopted from previous research (Eilifsen et al., 2019; Wood, 2012). For the manipulation of ChatGPT, participants were asked to conduct a fraud risk assessment with the assistance of ChatGPT. Prompts are commands or instructions given to a system, program, or model to generate a specific response or action, adopted and modified from previous research on prompt pattern catalogs to improve prompt engineering with ChatGPT (Vasarhelyi et al., 2023; White et al., 2023). The variables of fraud risk assessment were measured using a 10-point Likert scale. The experimental manipulation test was conducted at the beginning with several questions to ensure understanding of the company profile and the participants' duties as auditors. Participants are considered to understand the experiment manipulation if they can answer the manipulation questions correctly.

The first case illustrates the client's business operations, with the CEO portrayed as a responsible figure and possessing a positive image in the public eye. Participants were then divided into two groups: one that received only relevant information and the other that received a combination of relevant and irrelevant information, as a consideration in assessing the risk of fraud. The relevant information provided includes the client's financial condition, debt restructuring policy, level of industry competition, debt ratio, and operating cash flow. Meanwhile, information is irrelevant, such as the retirement of the head of internal audit and compensation cuts related to budget achievement. After reading the scenario, participants were asked to rate the client's risk of fraud using a 10-point Likert scale, ranging from 1 (very low) to 10 (very high). In the case of both participants who had received this type of information before, they were asked to use the ChatGPT tool to review the fraud risk assessment.

Table 1. Matrix of Design Experiment 2x2 Between-Subjects

Fraud Risk Assessment	Artificial Intelligence	
	Without ChatGPT	With ChatGPT
Relevant Information	Salt 1.1	Salt 1.2
Relevant and Irrelevant Information	Salt 2.1	Salt 2.2

4. Result and Discussion

The Effect of Dilution on Fraud Risk Assessment

This study employed the T-test on an independent sample to examine the effect of dilution on the assessment of fraud risk in the client's business environment. The test compares auditors' perceptions between the group that received only relevant information and the group that received a combination of relevant and irrelevant information that was exposed to dilution effects. The results of the descriptive summary are presented in Table 2, and the T-test results are shown in Table 3.

Table 2: Descriptive Statistics of Auditor Fraud Risk Assessment Based on Dilution Effect

Group Statistics					
Without ChatGPT		N	Mean	Std Deviation	Std. Red Error
Fraud Risk Assessment	Auditor without dilution effect	35	8.00	2.072	0.350
	Auditor with dilution effect	31	6.42	2.527	0.454

Table 3: Independent Samples Test

		t-test for Equality of Means						
		t	Df	Sig (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Cheating Risk Assessment without ChatGPT	Equal variances assumed	2.791	64	0.007	1.581	0.566	0.449	2.712
	Equal variances not assumed	2.757	58.173	0.008	1.581	0.573	0.433	2.728

Table 4: ANOVA Results of Fraud Risk Assessment Based on Diluted Effects

	Source of Variation	Sum of Squares	Df	Mean Square	F	Sig.
Without ChatGPT	Between Groups	41.073	1	41.073	7.788	0.007
	Within Groups	337.548	64	5.274		
	Total	378.621	65			

Based on the results of the descriptive analysis, auditors who received relevant and irrelevant information provided lower fraud risk assessments (mean = 6.42 and std. dev = 2.527)

compared to auditors who only received relevant information (mean = 8.00 and std. dev = 2.072). These findings suggest a dilution effect, which is when irrelevant information weakens the strength of relevant evidence that actually indicates fraud. This condition ultimately makes the auditor provide a lower risk assessment of fraud. Hypothesis 1 states that auditors exposed to dilution effects will provide a lower risk assessment of fraud risk to the client's business environment compared to auditors who are not exposed to diluted effects. The independent sample results of the T test showed a significance value of p = 0.007; this p value was less than 0.05, so H0 was rejected. The results of the T-test showed that there was a statistically significant difference between the average fraud risk assessment results of the group of auditors who received only relevant information and the group that received a combination of relevant and irrelevant information. Anova's results in Table 3 explain that the Sum of Squares Between value of 41.073 indicates a variation in fraud risk assessment influenced by the dilution effect. In contrast, the Sum of Squares Within of 337.548 reflects a greater variation within the group that comes from factors other than the dilution effect.

The results of this study are in line with previous findings that show that the dilution effect arises when auditors are exposed to irrelevant information, thereby weakening the strength of relevant evidence (Chadd et al., 2021; Eilifsen et al., 2019; Favere-Marchesi & Pincus, 2006; Giordano & Victoravich, 2025; McHugh & Igou, 2025; Nickell et al., 2022). The inclusion of irrelevant information in the auditor's consideration may reduce the weight of revelatory evidence (Chadd et al., 2021). The dilution effect also obscures the influence of relevant information in risk assessment (Eilifsen et al., 2019). The dilution effect directly weakens diagnostic evidence when auditors are faced with a combination of relevant and irrelevant information (Favere-Marchesi & Pincus, 2006). Auditors also tend to lower their risk assessment of fraud due to exposure to irrelevant information (Giordano & Victoravich, 2025). In addition, the dilution effect is recognized as a form of systematic cognitive bias in audit decision-making (McHugh & Igou, 2025). The consistency of these findings is reinforced by evidence that repeated irrelevant information can degrade the quality of auditors' assessment of fraud risk (Nickell et al., 2022).

The Use of ChatGPT and Auditor Cheating Risk Assessment

The second hypothesis posits that when fraud occurs and auditors are influenced by the dilution effect, auditors who utilize ChatGPT are more likely to adjust their risk assessments compared to those who do not use ChatGPT. This hypothesis can be tested by looking at the descriptive statistics in Table 5. As a result, auditors who received relevant information gave a higher average rating with a mean = 8.91 compared to the group that received a combination of relevant and irrelevant information with a mean = 7.97. This average difference is smaller than in conditions without ChatGPT, suggesting that the use of ChatGPT has the potential to reduce the dilution effect by helping auditors stay focused on relevant information.

Univariate variance analysis was used to evaluate the interaction between the dilution effect and the use of ChatGPT in fraud risk assessment by auditors. The purpose of this analysis was to see if the application of ChatGPT affected the impact of dilution effects on risk assessment. The results of this analysis are presented in detail in Table 6. The results of the univariate variance analysis showed that the model as a whole was significant, with values F = 1.844 and p = 0.041 at $\alpha = 0.05$. This indicates that the combination of dilution effects and the use of AI (ChatGPT) together exerts a significant influence on fraud risk assessment. An intercept value of F = 487.136 with $p < 0.001$ indicates that the average overall fraud risk assessment differs significantly from zero, meaning there is a basis for a significant difference in the auditor's assessment. In addition, the interaction between dilution effects and ChatGPT use was also

significant (F = 1.844; p = 0.041), indicating that the use of ChatGPT may moderate or influence the extent to which dilution effects impact an auditor's fraud risk assessment. The value of R^2 = 0.567 indicates that the model explains about 56.7 of % variation in fraud risk assessments, which indicates a fairly strong level of explanation. Meanwhile, Adjusted R^2 = 0.260 provides a more conservative estimate, taking into account the number of predictors, which suggests that approximately 26% of the variation is explained in real terms by the model. At the same time, the rest is influenced by other factors not included in the model.

Table 5: Descriptive Statistics of Auditor Cheating Risk Assessment: Comparison of the Effects of Dilution on Conditions with and without ChatGPT

Types of Information	Artificial Intelligence	
	Without ChatGPT	With ChatGPT
Relevant Information	Cell 1.1 N = 35 Red = 8.00 Std Dev = 2,072	Cell 1.2 N = 35 Red = 8.91 Std Dev = 1.401
Relevant and Irrelevant Information	Cell 2.1 N = 31 Red = 6.42 Std Dev = 2.527	Cell 2.2 N = 31 Red = 7.97 Std Dev = 1.581

Table 6: Results of Interaction Between Subjects Fraud Risk Assessment with Dilution Effect and ChatGPT

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	9.323a	27	0.345	1.844	0.041
Intercept	91.231	1	91.231	487.136	<0.001
Efek_Dilusi* Artificial_Intelligence	9.323	27	0.345	1.844	0.041
Error	7.117	38	0.187		
Total	159.000	66			
Corrected Total	16.439	65			

a. R Squared = 0.567 (Adjusted R Squared = 0.260)

Table 7: Post Hoc Test Multiple Comparisons of Auditor's Fraud Judgment

Auditors' Fraud Judgment (I)	Auditors' Fraud Judgment (J)	Mean Difference (I-J)	Std. Eror	Sig.
Cell 1.2 Red = 8.91 N = 35	Cell 1.1 Red = 8.00 N = 35	0.91	0.463	0.301
	Cell 2.1 Red = 6.42 N = 31	2.49*	0.477	<0.001
	Cell 2.2	0.95	0.477	0.297

Auditors' Fraud Judgment (I)	Auditors' Fraud Judgment (J)	Mean Difference (I-J)	Std. Eror	Sig.
	Red = 7.97 N = 31			
Cell 1.1 Red = 8.00 N = 35	Cell 2.1 Red 6.42 N = 31	1.58*	0.473	0.007
	Cell 2.2 Red = 7.97 N = 31	0.03	0.477	1.000
Cell 2.2 Red = 7.97 N = 31	Cell 2.1 Red 6.42 N = 31	1.55*	0.491	0.012

Based on the results of Bonferroni's Post Hoc test, it can be seen that some comparisons between groups show significant differences in fraud risk assessments, while others do not. The first comparison between Cell 1.1 (Without ChatGPT + Relevant) and Cell 2.1 (without ChatGPT and a combination of relevant + irrelevant information) showed a significant difference with a mean difference = 1.58 and p = 0.007, indicating that the Dilution Effect occurs when the auditor without the help of AI receives a combination of information, so that the fraud risk assessment score is lower than when only receiving relevant information. The second comparison between Cell 2.1 (without ChatGPT and a combination of relevant + irrelevant information) and Cell 1.2 (with ChatGPT + relevant information) was also significant, with a mean difference = 2.49 and p < 0.001, suggesting that the use of ChatGPT can help auditors better assess risk, even when relevant information is added. Furthermore, the comparison between Cell 2.1 and Cell 2.2 also revealed a significant difference, with a mean difference of 1.55 and p = 0.012, confirming that ChatGPT helped auditors reduce the influence of irrelevant information.

These results show that when auditors used ChatGPT, there was no significant difference in their risk assessment scores, regardless of whether they received only relevant information (Cell 1.2) or relevant and irrelevant information (Cell 2.2). This strongly supports the conclusion that ChatGPT serves as a stabilizer or protector against the Dilution Effect. In other words, ChatGPT effectively eliminates or neutralizes the Dilution Effect. At the same time, auditors without AI are more susceptible to cognitive error, especially when receiving a combination of relevant and irrelevant information (Cell 2.1). In summary, Bonferroni's Post Hoc test showed that the Dilution Effect was very strong and significant when the auditor was not assisted by ChatGPT (Cell 1.1 vs. Cell 2.1), ChatGPT played a role in stabilizing the auditor's judgment (Cell 1.2 vs. Cell 2.2), and the largest difference occurred in the group most vulnerable to cognitive error, namely Cell 2.1 (without ChatGPT + a combination of relevant information + irrelevant).

The results of this study are in line with the literature related to the Dilution Effect and the role of AI in audit practices. Irrelevant information can affect auditors' judgment, reinforcing the concept of the Dilution Effect observed in groups without ChatGPT's help (Chadd et al., 2021) Efforts to mitigate the effects of dilution are relevant to ChatGPT's role as a moderator that helps auditors emphasize relevant information by ignoring irrelevant information (Eilifsen et al., 2019). Empirical evidence suggests that the use of ChatGPT can improve audit quality and

reduce auditors' cognitive errors (Bouziane, 2025). Meanwhile, ChatGPT helps auditors handle complex or irrelevant information (Gu et al., 2023). Large Language Models (LLMs) such as ChatGPT can be used as a tool to stabilize auditor judgment (Vasarhelyi et al., 2023). ChatGPT also has a significant role in accounting practices as well as decision-making (Biancone & Chmet, 2024). Overall, these findings support the conclusion that ChatGPT serves as an effective moderation mechanism to reduce the dilution effect on fraud risk assessments

5. Conclusions

This study provides empirical evidence that Artificial Intelligence, particularly ChatGPT, can alter the dynamics of auditors' assessments of fraud risk. In line with previous research on the effects of dilution, the findings suggest that auditors who receive a combination of relevant and irrelevant information without the aid of AI tend to assign a lower risk score for fraud, reflecting the presence of a strong cognitive bias. However, the use of ChatGPT in the decision-making process has been shown to significantly mitigate the dilution effect, where auditors remain consistent in providing fraud risk assessments, both when receiving only relevant information and when receiving a combination of relevant and irrelevant information. These results enrich the auditing and artificial intelligence literature by confirming that large language models can serve as cognitive moderators, helping professionals filter out non-diagnostic information while focusing attention on relevant evidence. From a practical perspective, these findings confirm the potential for integrating ChatGPT into the audit process to enhance the quality of assessments, mitigate vulnerability to bias, and enhance the overall reliability of audits. Thus, this study confirms the transformative role of ChatGPT in supporting auditors' professional judgment in the midst of information complexity, not only as a tool to mitigate the dilution effect, but also as a stabilizer that encourages consistency and resilience in fraud risk assessments, with important implications for regulators, public accounting firms, and academics in formulating the future direction of audit practices in the era of artificial intelligence.

Implication and Future Research

The findings of this study have important implications both theoretically and practically. Theoretically, this study expands the understanding of the dilution effect in auditing by showing that cognitive bias due to irrelevant information can be reduced through the use of AI-based technologies, especially ChatGPT, thus confirming the role of large language models as cognitive aids that are able to stabilize auditors' judgments while enriching the literature on the influence of technology in professional decision-making. From a practical perspective, the results of this study confirm the need to integrate ChatGPT or similar technology in modern auditing practices to improve the quality of fraud risk assessment through filtering out excessive information, strengthening objectivity, and reducing errors due to cognitive bias. For regulators and professional associations, these findings provide a basis for formulating guidelines for the use of AI in audits to maintain quality, reliability, and accountability. At the same time, for public accounting firms, this research opens up opportunities for the adoption of AI-based technology as an innovation strategy that can strengthen competitiveness in the digital era.

This research has limitations because it was conducted in the context of laboratory experiments with controlled information conditions, so generalization of results to real audit practices needs

to be done carefully. For this reason, further research is suggested to expand the context through field studies using real audit data and exploring higher information complexity. Future research may also examine additional moderator factors, such as auditor experience levels, confidence levels in AI, individual cognitive styles, and organizational cultural differences in technology adoption, as well as conduct cross-border studies to understand variations in ChatGPT's effectiveness in different regulatory environments and audit cultures. Furthermore, comparative studies between ChatGPT and other AI models, including the latest generation of large language models, have the potential to provide a more comprehensive picture of the technology's relative effectiveness in supporting fraud risk assessment. Thus, the future direction of research is expected not only to strengthen empirical evidence but also to produce strategic recommendations for the audit profession in facing challenges in the era of artificial intelligence.

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