

Fraud Awareness And Professional Skepticism In Detecting Fraud: Moderation Of Religiosity In Accounting Students

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Abstract

Fraud detection is a critical competence for accounting professionals in preventing financial irregularities. This study examines the influence of fraud awareness and professional skepticism on fraud detection ability, with religiosity as a moderating variable. Data were collected from accounting students in Lamongan who had completed auditing courses and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that fraud awareness and professional skepticism significantly improve fraud detection ability. Religiosity also has a significant effect and moderates the relationships among variables by weakening the effect of fraud awareness while strengthening the effect of professional skepticism on fraud detection ability. These findings highlight the importance of integrating cognitive competence, professional attitudes, and ethical values in accounting education.

INTRODUCTION

Fraud is a global phenomenon that continues to grow as the complexity of financial systems and organizational governance increases. Fraud causes significant financial losses and damages reputation and public trust. Occupational Fraud 2024: A Report to the Nations, published by the Association of Certified Fraud Examiners (2024), reports that organizations worldwide lose an average of 5% of annual revenue due to fraud, with a median loss of USD 145,000 per case and an average detection time of 12 months. Delays in detection correlate with the magnitude of the loss and the complexity of the financial statement manipulation (Rezaee & Wang, 2022). These findings underscore the importance of improving individual capabilities in early fraud detection. Improving fraud detection capabilities is becoming increasingly important as auditors face the complexity of financial transactions and the pressures of an ever-evolving business environment, requiring strong analytical and professional competencies to identify indications of fraud (Wahidahwati & Asyik, 2022).

In the audit context, fraud detection ability is related to the accuracy of risk assessment and professional evaluation of evidence. Systematic studies show that the success of fraud detection is influenced by the auditor's ability to interpret red flags and critically evaluate evidence (Munteanu et al., 2024). The quality of professional judgment is also significantly related to the effectiveness of identifying material misstatements due to fraud (Knechel & Salterio, 2022). Thus, fraud detection depends not only on formal procedures but also on individual cognitive and

behavioral factors. Recent research also shows that auditor competence and professional skepticism are important determinants in increasing the effectiveness of the fraud detection process in modern audit practice (Handoko & Sardjono, 2022).

One of the main cognitive factors is fraud awareness, namely understanding the patterns and indicators of fraud. Individuals with a high level of awareness are more sensitive to financial statement anomalies (Sari & Nugroho, 2022). Red flag awareness has been shown to positively impact fraud detection performance (Ramadhany et al., 2025), and red flag-based training improves fraud detection accuracy (Rahmawati & Sari, 2024).

Furthermore, professional skepticism serves as an evaluative attitude that encourages objective assessment of evidence. Professional skepticism significantly influences the ability to detect fraud (Agustina et al., 2021) and increases the effectiveness of identifying material misstatements (Azhar et al., 2025). This attitude also helps minimize cognitive bias in the audit process (Iskandar & Pratiwi, 2022). Various empirical studies also show that professional skepticism has a significant relationship with auditors' ability to identify indications of fraud in financial statements (Nazri et al., 2023). The combination of fraud awareness and professional skepticism simultaneously increases the accuracy of fraud detection (Ramadhany et al., 2025).

In addition to cognitive factors and professional attitudes, individual moral values also influence ethical decision-making. Within the Theory of Planned Behavior framework, religiosity influences attitudes and subjective norms toward professional integrity. Religiosity has been shown to significantly influence fraud detection (Betri & Hafidz, 2024) and increase auditors' responsibility in detecting fraud (Damayanti & Agustia, 2025). Religiosity also increases ethical sensitivity in audit practice (Yusuf & Nuryanto, 2022). However, most studies place religiosity as an independent variable, not a moderating variable.

Previous research has generally focused on professional auditors and tested variables partially (Agustina et al., 2021; Azhar et al., 2025; Ramadhany et al., 2025). However, the formation of professional competence begins during higher education. Accounting students with high levels of fraud awareness and skepticism demonstrate better analytical skills in solving audit cases (Santoso & Wijaya, 2023). Furthermore, research in the context of accounting education shows that fraud dimensions such as pressure, opportunity, rationalization, and ability influence accounting students' academic fraud behavior (Darmayanti et al., 2020). These findings indicate that individual behavioral and character factors are formed during the educational phase and have the potential to influence future professional readiness. The selection of accounting students in Lamongan Regency was based on academic considerations that the educational phase is the stage where professional judgment, integrity, and a skeptical mindset are formed before entering the

world of practice. The district scope allows for testing in an educational context that is relatively homogeneous in terms of curriculum and academic environment, thereby helping to reduce uncontrolled external variation. Thus, this research object is relevant for examining the cognitive and moral readiness of prospective auditors in a more focused manner. Research integrating fraud awareness, professional skepticism, and religiosity into a single moderation model in accounting students is still limited, leaving a relevant research gap.

This research is novel in three aspects. First, religiosity is positioned as a moderating variable influencing the relationship between fraud awareness and professional skepticism, with fraud detection ability. Second, this study builds an integrative model that combines cognitive factors, professional attitudes, and moral values within a single empirical framework. Third, the model is tested on accounting students as prospective auditors, thus providing a new perspective on the context of developing competence and integrity during higher education.

Based on this description, this study aims to test the influence of fraud awareness and professional skepticism on the ability to detect fraud with religiosity as a moderating variable in accounting students.

Practically, the results of this study have implications for the development of auditing curricula in higher education, particularly in strengthening fraud awareness materials, providing case study-based professional skepticism training, and internalizing the values of integrity and religiosity in accounting learning. The findings also form the basis for developing character-based training programs to enhance students' readiness to become competent and high-integrity future auditors.

METHODS

This study uses a quantitative approach with an explanatory design to examine the effect of fraud awareness and professional skepticism on fraud detection ability, with religiosity as a moderating variable. The study population was accounting students in Lamongan Regency who had taken auditing courses. The research sample was determined using a purposive sampling technique, selecting respondents based on certain criteria. The research data consisted of primary data obtained through a questionnaire with a five-point Likert scale. Data analysis was performed using Structural Equation Modeling based on Partial Least Squares (SEM-PLS) with the assistance of SmartPLS software to test the relationships between variables in the research model (Hair et al., 2022).

RESULTS AND DISCUSSION

Evaluation of Measurement Model (*Outer Model*)

The structural model is created by designing the relationships between latent variables. The results of construct validity and reliability testing are explained in the following outer model stage:

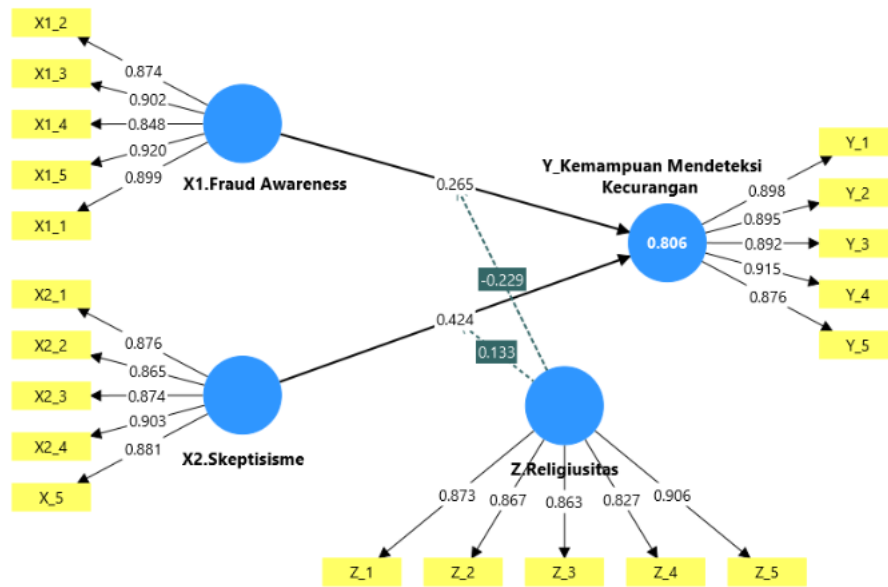


Figure 1 Results of Measurement Model Evaluation (Outer Model)

Convergent Validity Test

The condition that must be considered is that if the results are high, they will correlate with the loading factor value which is more than 0.70 (Ghozali & Latan, 2015) .

Table 4.1 Convergent Validity Test Results

Indicator	Outer Loading Value	Average Variance Extracted (AVE)	Information
Fraud Awareness			
X1.1	0.769	0.790	Valid
X1.2	0.762		Valid
X1.3	0.770		Valid
X1.4	0.823		Valid
X1.5	0.839		Valid
Skeptisism			
X2.1	0.832	0.774	Valid
X2.2	0.844		Valid
X2.3	0.854		Valid

X2.4	0.860		Valid
X2.5	0.854		Valid
Religiosity			
Z1	0.801	0.753	Valid
Z2	0.843		Valid
Z3	0.795		Valid
Z4	0.823		Valid
Z5	0.863		Valid
Fraud Detection Ability			
Y1	0.787	0.801	Valid
Y2	0.809		Valid
Y3	0.850		Valid
Y4	0.854		Valid
Y5	0.862		Valid

Based on the table above, we can see that the value of each indicator, or *outer loading*, is greater than 0.7, and the AVE value for all variables is greater than 0.5. These results indicate that each variable has good discriminant validity. Therefore, all indicator items are considered valid because they meet the requirements for convergent validity and can be further analyzed.

a. Reliability

In SEM-PLS analysis, a construct is declared reliable if it has a *composite reliability value* >0.6 and is supported by a Cronbach's Alpha value >0.7. The results of the composite reliability test can be seen in the following table:

Outer Model Table

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)
X1. Fraud Awareness	0.933	0.935	0.950
X2.Skepticism	0.927	0.928	0.945
Y_Ability to Detect_Fraud	0.938	0.939	0.953
Z. Religiosity	0.918	0.921	0.938

Source: Smart PLS 4.0 Processed Data

the Composite Reliability value of all variables has exceeded 0.6 and *the Cronbach's Alpha* value is above 0.7, which means it has met the reliability assumption.

b. Discriminant Validity Test

To assess discriminant validity, the heterotrait-monotrait ratio (HTMT) is used with an acceptable limit value of <0.9. (Hair dkk., 2022)

	X1. Fraud Awareness	X2. Skepticism	Y_Ability to Detect_Fraud	Z. Religiosity	Z.Religiosity x X1.Fraud Awareness	Z. Religiosity x X2. Skepticism
X1. Fraud Awareness						
X2.Skepticism	0.819					
Y_Ability to Detect_Fraud	0.853	0.896				
Z. Religiosity	0.719	0.740	0.802			
Z.Religiosity x X1.Fraud Awareness	0.612	0.692	0.697	0.578		
Z.Religiosity x X2.Skepticism	0.581	0.721	0.649	0.583	0.891	

Source: Smart PLS 4.0 Processed Data

The results of the discriminant validity measurement using the heterotrait-monotrait ratio (HTMT) can be seen in the table above. All HTMT values are <0.9, meaning all variables are considered valid.

Fornell-larcker

The *Fornell-Larcker* criterion is defined as a measure that compares the square root of the AVE value with the relationship between latent variables. Therefore, the square root of each AVE construct must be greater than its correlation value with other constructs. The Fornell-Larcker criterion values are as follows:

	X1. Fraud Awareness	X2.Skepticism	Y_Ability to Detect_Fraud	Z. Religiosity
X1. Fraud Awareness	0.889			

X2.Skepticism	0.763	0.880		
Y_Ability to Detect_Fraud	0.799	0.837	0.895	
Z. Religiosity	0.667	0.685	0.746	0.868

Source: Smart PLS 4.0 Processed Data

the *Fornell-Larcker criterion* test, the square root value of each AVE construct is greater than its correlation value with other constructs. This indicates that the requirements for discriminant validity have been met and are acceptable.

Cross Loading

Discriminant validity can also be determined based on the *Cross Loading value*, namely the loading score obtained on the same indicator block must be greater than the correlation value between latent variables. The *Cross Loading value* of this research hypothesis is shown as follows:

	X1. Fraud Awareness	X2. Skepticism	Y_Ability to Detect_Fraud	Z. Religiosity	Z.Religiosity x X1.Fraud Awareness	Z.Religiosity x X2.Skepticism
X1_2	0.874	0.669	0.715	0.584	-0.474	-0.459
X1_3	0.902	0.718	0.746	0.605	-0.542	-0.554
X1_4	0.848	0.612	0.653	0.568	-0.546	-0.482
X1_5	0.920	0.711	0.727	0.615	-0.552	-0.519
X2_1	0.679	0.876	0.742	0.621	-0.648	-0.639
X2_2	0.673	0.865	0.714	0.638	-0.638	-0.641
X2_3	0.629	0.874	0.709	0.577	-0.550	-0.616
X2_4	0.687	0.903	0.771	0.605	-0.557	-0.584
X_5	0.688	0.881	0.743	0.571	-0.539	-0.572
Y_1	0.783	0.759	0.898	0.665	-0.643	-0.592
Y_2	0.690	0.788	0.895	0.697	-0.578	-0.545
Y_3	0.700	0.690	0.892	0.674	-0.563	-0.559
Y_4	0.713	0.775	0.915	0.644	-0.572	-0.544
Y_5	0.689	0.728	0.876	0.658	-0.663	-0.571
Z_1	0.610	0.558	0.611	0.873	-0.491	-0.458

Z_2	0.590	0.637	0.675	0.867	-0.515	-0.503
Z_3	0.562	0.575	0.626	0.863	-0.466	-0.483
Z_4	0.501	0.528	0.601	0.827	-0.398	-0.447
Z_5	0.623	0.659	0.712	0.906	-0.532	-0.529
X1_1	0.899	0.676	0.707	0.591	-0.512	-0.481
Z.Religiosity x X1.Fraud Awareness	-0.590	-0.666	-0.675	-0.556	1,000	0.891
Z.Religiosity x X2.Skepticis m	-0.562	-0.693	-0.628	-0.560	0.891	1,000

Based on the results of *the Cross Loading values* above, it shows that the loading factor value for each variable is greater than the *Cross Loading value* . Therefore, this indicates that all indicators of all variables used in this study are declared valid.

Measurement Model Analysis

No.	GOF Size	Match Rate Target	Estimation Results	Match Level
(1)	(2)	(3)	(4)	(5)
1.	Chi Square		8701.241	Good fit
3.	SRMR	SRMR < 0.1	0.055	Good fit
4.	NFI	NFI ≤ 1	0.669	Good fit
5.	d_ULS	Probability > 0.05	2,576	Good fit
6.	d_G	Probability > 0.05	5,725	Good fit

2. Structural Model Evaluation (Inner Model Analysis)

a. Multicollinearity Test

The Variance Inflation Factor (VIF) is a value used to test the collinearity of a model. A VIF value higher than 5.00 indicates a collinearity problem, as high VIF values can make it difficult

to interpret path coefficients. Conversely, a VIF value less than 5.00 indicates no collinearity problem (Sarstedt dkk., 2017).

	VIF
X1.Fraud Awareness -> Y_Ability to Detect_Fraud	2,725
X2.Skepticism -> Y_Ability to Detect_Fraud	3,403
Z.Religiosity -> Y_Ability to Detect_Fraud	2,127

Based on the results of the multicollinearity test, the inner VIF value was below 5, indicating that there was no multicollinearity between the variables.

b. Direct Effect

Hypothesis testing is carried out by observing the original sample estimates (O) to determine the direction of the relationship between variables, as well as t-statistics (T), and p-values (P) to determine the level of significance of the relationship. Original sample values that are close to +1 indicate a positive relationship, while values that are close to -1 indicate a negative relationship (Sarstedt dkk., 2017). A t-statistic value of more than 1.96 or a p-value that is smaller than the significance level (<0.05) indicates that a relationship The correlation between variables is significant. The results of the research hypothesis testing can be seen in the following table:

	Original sample (O)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X1.Fraud Awareness -> Y_Ability to Detect_Fraud	0.265	0.070	3,782	0.000
X2.Skepticism -> Y_Ability to Detect_Fraud	0.424	0.076	5,548	0.000
Z.Religiosity -> Y_Ability to Detect_Fraud	0.232	0.067	3,442	0.001
Z.Religiosity x X1.Fraud Awareness -> Y_Ability to Detect_Fraud	-0.229	0.082	2,813	0.005
Z.Religiosity x X2.Skepticism -> Y_Ability to Detect_Fraud	0.133	0.059	2,252	0.024

Based on the table above, the relationship between research variables can be explained as follows:

1. The first hypothesis **(H1) is accepted**, namely that Fraud Awareness has a positive and significant effect. to Fraud Detection Ability with a path coefficient of 0.265 and a p-value of $0.000 < 0.05$. Each increase in Fraud Awareness will also increase the Fraud Detection Ability.
2. The second hypothesis **(H2) is accepted**, namely that skepticism has a positive and significant influence. to Ability to Detect Fraud with a path coefficient (0.424) and p-value ($0.000 < 0.05$). Each increase in Skepticism will also increase the Ability to Detect Fraud.

c. Moderation Influence

	Original sample (O)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
X1.Fraud Awareness -> Y_Ability to Detect_Fraud	0.265	0.070	3,782	0.000
X2.Skepticism -> Y_Ability to Detect_Fraud	0.424	0.076	5,548	0.000
Z.Religiosity -> Y_Ability to Detect_Fraud	0.232	0.067	3,442	0.001
Z.Religiosity x X1.Fraud Awareness -> Y_Ability to Detect_Fraud	-0.229	0.082	2,813	0.005
Z.Religiosity x X2.Skepticism -> Y_Ability to Detect_Fraud	0.133	0.059	2,252	0.024

3. The third hypothesis **(H3) is accepted**, indicating that religiosity moderates the relationship between fraud awareness and the ability to detect fraud, with a path coefficient value of -0.229 **and** a p-value of 0.005 (< 0.05). The negative coefficient value indicates that religiosity tends to weaken the influence of fraud awareness on the ability to detect fraud.
4. The fourth hypothesis **(H4) is accepted**, which shows that religiosity moderates the relationship between professional skepticism and the ability to detect fraud with a path coefficient value of 0.133 and a p-value of 0.024 (< 0.05). The positive coefficient indicates that religiosity strengthens the influence of professional skepticism on the ability to detect fraud.

3. Evaluation of Model Quality and Suitability

a. R Square Value

There are three categories in the R-square value grouping. If the R-square value is > 0.75, it is included in the strong category; an R-square value of 0.50–0.75 is included in the moderate category, and 0.25 is included in the weak category (Hair et al., 2010). The R-square values of the dependent variables obtained in this research model can be seen in the following table:

	R-square
Y_Ability to Detect_Fraud	0.806

Based on the table, the results of data processing through SmartPLS produce an R Square value for the variable Ability to Detect Fraud. of 0.806. This value explains that the strength of Fraud Awareness, Skepticism, in predicting the Ability to Detect Fraud is 0.806 or 80.6% in the strong criteria.

b. F Square Value

An f-square value of 0.02 is considered small, 0.15 is considered medium, and 0.35 is considered large. Values less than 0.02 can be ignored or considered to have no effect. (Sarstedt dkk., 2017).

	f-square
X1.Fraud Awareness -> Y_Ability to Detect_Fraud	0.133
X2.Skepticism -> Y_Ability to Detect_Fraud	0.272
Z.Religiosity -> Y_Ability to Detect_Fraud	0.130
Z.Religiosity x X1.Fraud Awareness -> Y_Ability to Detect_Fraud	0.077
Z.Religiosity x X2.Skepticism -> Y_Ability to Detect_Fraud	0.035

Based on the F-square value table above, there is no large effect size with the criteria of F-square > 0.35. Furthermore, a medium effect size, namely between 0.15 - 0.35, is the Influence of Skepticism on the Ability to Detect Fraud. Meanwhile, a low effect has an F-square value of 0.02 - 0.15, which is the influence of Fraud Awareness on Ability to Detect Fraud, the influence of Skepticism on the Ability to Detect Fraud moderated by Religiosity and the influence of Fraud Awareness on the Ability to Detect Fraud moderated by Religiosity.

a. Q Square

In addition to the R-square value, the Q-square value is also used to determine the goodness-of-fit of the model, where a higher Q-square value indicates a better fit of the structural

model to the data (Sarstedt et al., 2017). The Q-square test in this study can be seen in the following table:

	Q ² predict
Y_Ability to Detect_Fraud	0.783

Based on the table above, it is known that the sum of the Q-Square values on both endogenous variables (Ability to Detect Fraud) is more than 0. By looking at these values, it can be concluded that this study has a good observation value because the Q square value is > 0 (zero). Thus, this research model is declared to meet the requirements of goodness (model fit).

DISCUSSION

H1 : The results of this study indicate that *fraud awareness* has a positive and significant effect on the ability to detect fraud. This finding indicates that the greater students' understanding of fraud patterns and indicators, the greater their ability to identify potential *fraud*. Individuals with a high level of *fraud awareness tend to be more sensitive to various indications of fraud or red flags* in financial reports and organizational activities. This result is in line with research (Ramadhany dkk., 2025) that (Sari & Nugroho, 2022) states that understanding fraud indicators can improve an individual's ability to detect fraud.

H2 : The results of this study indicate that professional skepticism has a positive and significant effect on the ability to detect fraud. Students who have a skeptical attitude tend to be more critical in evaluating information and are less likely to accept information without verification. In the context of auditing, professional skepticism helps individuals evaluate evidence objectively, thereby minimizing bias in the assessment process (Iskandar & Pratiwi, 2022). This finding is consistent with research (Azhar dkk., 2025) that (Agustina dkk., 2021) suggests that professional skepticism improves auditors' ability to identify fraud.

H3 : The results of this study indicate that religiosity moderates the relationship between *fraud awareness* and the ability to detect fraud in a negative direction. This suggests that in individuals with high levels of religiosity, the ability to detect fraud is influenced not only by technical understanding of *fraud indicators* but also by the individual's moral values. Religiosity can increase ethical sensitivity to behavior that conflicts with moral values, thus influencing how individuals interpret fraud awareness. (Betri & Hafidz, 2024; Yusuf & Nuryanto, 2022)

H4 : The results of this study indicate that religiosity strengthens the influence of professional

skepticism on the ability to detect fraud. Religious values can strengthen attitudes of caution, integrity, and moral responsibility in evaluating information. Individuals with high levels of religiosity tend to uphold the values of honesty and trustworthiness, making them more critical in assessing evidence related to potential fraud. This finding aligns with research (Damayanti & Agustia, 2025) showing that religiosity can strengthen professional responsibility in detecting fraud.

CONCLUSION

This study aims to examine the effect of fraud awareness and professional skepticism on the ability to detect fraud, with religiosity as a moderating variable, among accounting students in Lamongan Regency. The results indicate that fraud awareness and professional skepticism have a positive and significant effect on the ability to detect fraud. This suggests that the greater an individual's understanding of fraud indicators and the higher their professional skepticism, the better their ability to identify potential fraud.

Furthermore, religiosity significantly influences the ability to detect fraud and acts as a moderating variable in the relationship between the research variables. Moderation results indicate that religiosity weakens the effect of fraud awareness on the ability to detect fraud, but strengthens the effect of professional skepticism on the ability to detect fraud.

Overall, the findings of this study indicate that the ability to detect fraud is influenced not only by cognitive factors such as understanding fraud indicators, but also by an individual's professional attitude and moral values. Therefore, developing accounting students' competencies as prospective auditors requires integrating learning about fraud awareness, fostering professional skepticism, and strengthening integrity and ethical values into the accounting education process. These findings emphasize the importance of an integrative approach in accounting education that emphasizes not only the technical aspects of auditing but also the development of professional attitudes and moral integrity in prospective auditors.

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