

Factors Influencing Bank Officers' Money Laundering Risk Judgments: The Roles of Knowledge, Management Support, and Regulation

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ABSTRACT: *This study examines the effect of knowledge, management support, and regulation on money laundering risk judgment by bank officers in Pekanbaru, Indonesia. Money laundering poses a serious threat to the banking sector and requires accurate professional judgment from officers responsible for anti-money laundering (AML) implementation. A quantitative method was used, which entailed the distribution of questionnaires to 120 bank branches, with a total target of 240 respondents. Of the questionnaires distributed, 92 were returned, and 81 of these were deemed valid for analysis. The collected data were then subjected to rigorous analysis using Structural Equation Modeling (SEM) with SmartPLS 4.0, a software designed to facilitate the analysis of complex data structures. The results show that knowledge has a positive and significant effect on money laundering risk judgment, indicating that officers with stronger AML knowledge are better at assessing money laundering risks. Management support also has a positive and significant effect, emphasizing the importance of leadership commitment and organizational support. In contrast, regulation has a negative and significant effect, suggesting that overly rigid regulations may limit officers' analytical flexibility. These findings highlight the importance of strengthening knowledge and management support while implementing regulations in a balanced manner.*

KEYWORDS- *Knowledge, Management Support, Regulation, Money Laundering Risk Judgment, Banking*

I. INTRODUCTION

Money laundering is a serious problem that continues to threaten the stability and integrity of the banking sector. Banks are often used as intermediaries to conceal the origin of illegal funds because of their role in processing financial transactions. If money laundering is not properly detected, it can damage public trust, weaken financial systems, and expose banks to legal and reputational risks. To prevent money laundering, bank officers are required to make accurate money laundering risk judgments when monitoring customer transactions. Risk judgment refers to the ability of officers to assess whether a transaction or customer behaviour indicates potential money laundering activity. In practice, this task is complex because officers must interpret large amounts of information while complying with strict regulations.

Several factors influence the quality of money laundering risk judgment made by bank officers. First, knowledge plays an important role. Bank officers who have a strong understanding of money laundering concepts, typologies, and anti-money laundering (AML) regulations are more capable of identifying suspicious transactions. Without sufficient knowledge, officers may fail to recognize warning signs of money laundering. Second, management support is essential in shaping officers' behaviour and decision-making. Support from top management, such as clear policies, adequate resources, continuous supervision, and a strong compliance culture, encourages officers to perform their duties effectively. When management shows commitment to AML implementation, officers tend to be more confident and careful in making risk judgments. Third, regulation also affects money laundering risk judgment. Regulations are designed to guide banks in preventing money laundering; however, overly rigid or complex regulations may limit officers' flexibility and professional judgment. As a result, officers may focus more on procedural compliance rather than substantive risk assessment.

Although previous studies have examined money laundering prevention, empirical research that simultaneously analyses the effects of knowledge, management support, and regulation on money laundering risk judgment remains limited, particularly in the Indonesian banking context. Therefore, this study aims to examine the effect of knowledge, management support, and regulation on money laundering risk judgment by bank officers in Pekanbaru, Indonesia. The findings of this study are expected to provide practical insights for banks and regulators in improving the effectiveness of AML implementation.

II. LITERATURE REVIEW

2.1. Theoretical Review

2.1.1. Pentagon Fraud Theory

Fraud Pentagon Theory was developed by Crowe Horwath (2011) as an extension of earlier fraud theories. This theory explains that fraud and financial crimes are influenced by five elements: pressure, opportunity, rationalization, competence, and arrogance. In the banking sector, money laundering risk may increase when internal control systems are weak, supervision is limited, and bank officers lack adequate competence to detect suspicious activities.

In relation to this study, the element of competence is closely associated with the level of knowledge possessed by bank officers. Officers with insufficient knowledge may fail to recognize money laundering indicators and make inaccurate risk judgments. In addition, weak management support may create opportunities for ineffective AML implementation. Therefore, Fraud Pentagon Theory provides a strong theoretical foundation to explain the importance of knowledge and management support in shaping money laundering risk judgment.

2.1.2. PPATK

In Indonesia, the establishment of the Pusat Pelaporan dan Analisis Transaksi Keuangan (PPATK) reflects the country's commitment to complying with international anti-money laundering standards established by the Financial Action Task Force (FATF). As the national Financial Intelligence Unit (FIU), PPATK plays a central role in the prevention and eradication of money laundering by receiving, analysing, and evaluating financial transaction reports, particularly Suspicious Transaction Reports (STRs) submitted by banks. Through this function, PPATK supports law enforcement agencies by providing financial intelligence necessary for investigating and prosecuting money laundering offenses.

The legal foundation for anti-money laundering implementation in Indonesia is provided under Law No. 8 of 2010, which mandates banks to monitor customer transactions and report any suspicious activities to PPATK. To further support effective implementation, PPATK issues various guidelines, typologies, and national risk assessments that assist banks in understanding emerging money laundering methods and high-risk transaction patterns. These resources encourage the adoption of a risk-based approach, requiring banks to go beyond formal compliance and actively assess the level of risk associated with customer behavior and transaction activities. Consequently, bank officers are expected to continuously monitor transactions, evaluate potential money laundering risks, and exercise accurate professional judgment when identifying and reporting suspicious activities. This process highlights the critical importance of money laundering risk judgment in ensuring the effectiveness of anti-money laundering efforts within the Indonesian banking sector.

2.1.3. Money Laundering Risk Judgments

Money laundering risk judgment refers to bank officers' professional assessment in identifying and evaluating transactions that may indicate money laundering risk. Jamil et al. (2023) explain that this judgment reflects officers' ability to interpret customer information, transaction patterns, and regulatory requirements. Meanwhile, Ogbeide et al. (2024) highlight that money laundering risk judgment involves subjective evaluation under uncertainty, requiring officers to balance regulatory guidance with professional discretion. Accurate risk judgment is therefore essential for effective anti-money laundering implementation.

2.1.4. Knowledge

It is important to understand how knowledge is a fundamental factor in the effectiveness of anti-money laundering (AML) implementation within banking operations. Adequate knowledge is essential because bank officers rely on their understanding of money laundering typologies, risk indicators, and reporting procedures when evaluating suspicious transactions. Huda Jamil et al. (2023) explain that officers with higher AML-related knowledge demonstrate stronger analytical capabilities and greater confidence in making money laundering risk judgments. Therefore, knowledge is crucial in reducing misjudgement and improving the accuracy of AML decision-making, particularly in complex transaction environments.

2.1.5. Management Support

Management support is critically important in ensuring that AML policies are implemented effectively at the operational level. Strong commitment from top management provides not only formal policies but also clear direction, supervision, and adequate resources for AML activities. Hoffman et al. (2024) show that leadership involvement significantly influences employees' judgment and decision-making quality. In addition, Karim et al. (2020) emphasize that management commitment strengthens compliance culture, which is essential for enabling bank officers to exercise professional judgment consistently when assessing money laundering risks.

2.1.6. Regulation

Regulation plays a central role in shaping anti-money laundering practices and guiding bank officers in assessing money laundering risks. Clear and well-implemented regulations are important because they provide structured guidance for risk assessment and reporting. Jamil et al. (2023) find that effective regulatory

enforcement supports consistent and accurate money laundering risk judgment. However, Benzerrouk et al. (2023) note that excessive regulatory pressure may reduce professional discretion, indicating that regulation is important not only in providing control but also in maintaining balance to ensure effective risk evaluation.

2.2. Hypothesis Development

2.2.1. The Effect of Knowledge on Money Laundering Risk Judgment

To ensure effective anti-money laundering (AML) implementation, bank officers must possess adequate knowledge related to money laundering risks. Knowledge helps officers understand how money laundering schemes operate and how suspicious transactions can be identified. Through sufficient knowledge, officers are able to recognize money laundering typologies, assess customer risk indicators, and apply appropriate reporting procedures.

This knowledge supports bank officers in evaluating transaction patterns, customer behaviour, and risk indicators in a structured manner. Officers with strong AML-related knowledge are better prepared to analyse complex transactions and reduce errors in judgment. As emphasized by Huda Jamil et al. (2023), higher levels of AML knowledge enhance officers' analytical capabilities and confidence when making money laundering risk judgments.

Therefore, knowledge is expected to have a positive and significant effect on money laundering risk judgment, as it improves the accuracy and consistency of officers' professional assessments.

H1: Knowledge has a positive and significant effect on Money Laundering Risk Judgment.

2.2.2. The Effect of Management Support on Money Laundering Risk Judgment

Management support plays an important role in strengthening the effectiveness of AML practices within banking institutions. Through clear policies, supervision, and adequate resource allocation, top management creates an environment that supports compliance and risk awareness among bank officers.

Strong management commitment encourages officers to consistently apply AML procedures and exercise professional judgment when evaluating suspicious transactions. According to Hoffman et al. (2024), leadership involvement and supervisory support significantly influence employees' decision-making quality. Similarly, Karim et al. (2020) highlight that management support strengthens compliance culture and enables officers to perform more reliable risk assessments.

Therefore, management support is expected to positively influence money laundering risk judgment by enhancing consistency and confidence in decision-making.

H2: Management Support has a positive and significant effect on Money Laundering Risk Judgment.

2.2.3. The Effect of Regulation on Money Laundering Risk Judgment

Regulation provides the formal framework that guides banks in preventing and detecting money laundering activities. Clear and well-implemented regulations help standardize risk assessment procedures and reporting mechanisms, allowing bank officers to assess money laundering risks more systematically.

According to Jamil et al. (2023), regulatory enforcement plays an important role in shaping compliance officers' judgment by providing structured guidance for risk evaluation. However, Benzerrouk et al. (2023) argue that overly strict regulatory pressure may limit professional discretion and reduce flexibility in assessing complex cases. This indicates that regulation can influence money laundering risk judgment in different ways depending on its implementation.

Therefore, regulation is expected to have a significant effect on money laundering risk judgment.

H3: Regulation has a significant effect on Money Laundering Risk Judgment.

Based on the previously discussed theoretical framework, the conceptual framework can be depicted as follows:

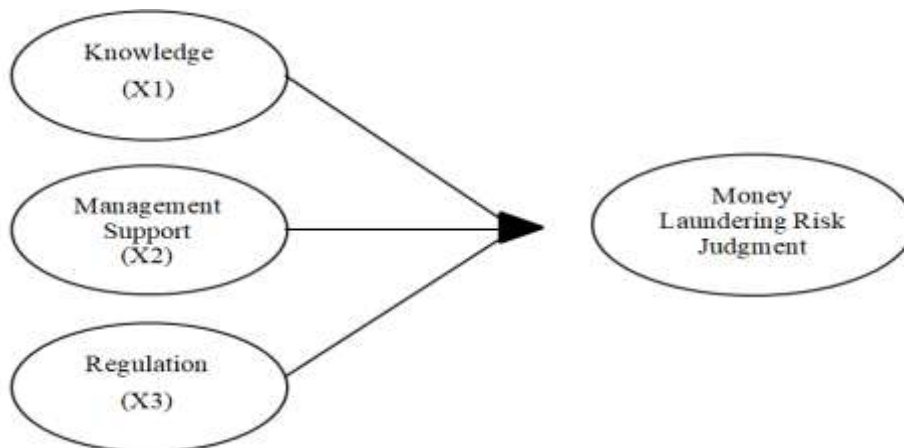


Figure 1. Conceptual Framework

III. METHODS

This study employed a quantitative research design using a survey method to examine the effect of knowledge, management support, and regulation on money laundering risk judgment by bank officers. A quantitative approach was selected because it enables the measurement of relationships between variables through numerical data and statistical analysis, providing objective evidence to test the proposed hypotheses (Hair et al., 2019).

The population of this study consisted of bank officers in Pekanbaru City, Indonesia, who are directly involved in anti-money laundering (AML) implementation and money laundering risk assessment. This includes officers working in compliance units, AML analysts, risk management officers, and other personnel responsible for monitoring transactions and identifying suspicious activities. This population was chosen because money laundering risk judgment requires professional experience and direct involvement in AML processes (Jamil et al., 2023).

Due to the limited availability of precise data regarding the total number of bank officers involved in AML functions in Pekanbaru City, a purposive sampling technique was employed to ensure that respondents met specific criteria relevant to this study. Purposive sampling is appropriate when respondents possess specialized knowledge related to the research topic (Ardiansyah et al., 2023). A total of 240 questionnaires were distributed to bank officers across bank branches operating in Pekanbaru City. Of these, 92 questionnaires were returned, and after data screening and validation, 81 questionnaires were deemed valid and suitable for analysis. This sample size is considered adequate for Structural Equation Modelling (SEM) using the Partial Least Squares (PLS) approach (Hair et al., 2021).

Primary data were collected through a structured questionnaire administered to the selected respondents. The questionnaire items were developed based on relevant literature and previous empirical studies related to AML, organizational support, regulation, and professional judgment, and were adapted to the Indonesian banking context to ensure content validity and clarity.

Data analysis was conducted using SEM with PLS approach, implemented through SmartPLS software. SEM-PLS was chosen due to its suitability for predictive and causal analysis, its ability to handle relatively small sample sizes, and its effectiveness in analysing complex models involving multiple constructs and indicators (Hair et al., 2019; Hair et al., 2021).

IV. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

This study explores the role of money laundering risk judgment, knowledge, management support, and regulation. The following are descriptive statistics for each variable in this study:

Table 1. Descriptive Statistics for Variable

Var.	Indicator	N	Minimum	Maximum	Mean	Std. Deviation
Knowledge	X1.1	81	2	7	5.506	0.970
	X1.2	81	2	7	5.395	1.027
	X1.3	81	3	7	5.160	1.059
	X1.4	81	2	7	5.383	1.072
	X1.5	81	3	7	5.259	0.953
Management Support	X2.1	81	3	7	5.988	1.117
	X2.2	81	3	7	6.111	1.133
	X2.3	81	3	7	6.049	0.980
	X2.4	81	2	7	5.975	1.054
	X2.5	81	3	7	6.012	0.949
	X2.6	81	3	7	6.000	1.066
Regulation	X3.1	81	2	7	5.852	1.156
	X3.2	81	3	7	5.556	1.165
	X3.3	81	3	7	5.605	1.096
	X3.4	81	2	7	5.531	1.031
MLRJ	Y.1	81	2	7	5.778	1.186
	Y.2	81	2	7	5.222	1.379
	Y.3	81	2	7	5.074	1.225
Valid N		81				

As presented in Table 1, the minimum scores obtained by respondents for the Knowledge (X1) indicators ranged from 2 to 3, while the maximum score for all indicators reached 7. The mean values for all Knowledge indicators ranged between 5.160 and 5.506, and in all cases, the mean values exceeded their respective standard deviations. This result indicates that respondents generally provided positive and consistent responses, suggesting that bank officers possess adequate knowledge regarding money laundering typologies, risk indicators, and reporting procedures. The relatively moderate standard deviation values imply that respondents' perceptions of AML-related knowledge are fairly homogeneous across the sample.

For the Management Support (X2) variable, the minimum score for each indicator ranged from 2 to 3, while the maximum score consistently reached 7. The mean scores for Management Support indicators were relatively high, ranging from 5.975 to 6.111, and all mean values were higher than their corresponding standard deviations. This finding indicates a strong consensus among respondents regarding the presence of management commitment, leadership involvement, and supervisory support in AML implementation. The relatively low dispersion of responses suggests that management support is perceived consistently across different bank branches and roles.

Regarding the Regulation (X3) variable, the minimum scores ranged from 2 to 3, and the maximum score was 7 for all indicators. The mean values ranged between 5.531 and 5.852, and all indicators demonstrated mean scores exceeding their standard deviations. This finding suggests that respondents generally perceive AML regulations as clear and supportive in guiding money laundering risk assessment and reporting processes. The standard deviation values indicate a moderate level of variability, reflecting differences in how regulatory requirements are interpreted and implemented across banking institutions.

Finally, for the Money Laundering Risk Judgment (MLRJ) variable, the minimum score for each indicator was 2, while the maximum score reached 7. The mean values ranged from 5.074 to 5.778, and all indicators showed mean values higher than their respective standard deviations. This result indicates that respondents generally agree on their ability to identify suspicious transactions and exercise professional judgment in assessing money laundering risks. The relatively low dispersion of responses suggests that bank officers' risk judgment capabilities are consistent and reliable across the sample.

4.2. Hypothesis Test Result

The hypothesis of this study was formulated on the basis of a p-value less than 0.05 with a significance level of 5%. This was done to ascertain the direct effect of the independent variable on the dependent variable.

Tabel 2. Path Coefficient

Variable	Original Sample (O)	Sample Mean (M)	Std. Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Descripted
H1 : K → MLRJ	0.511	0.509	0.145	3.530	0.000	Accepted
H2 : MS → MLRJ	0.329	0.347	0.140	2.346	0.019	Accepted
H3 : R → MLRJ	-0.219	-0.208	0.110	1.991	0.046	Accepted

Based on Table 2, the results of hypothesis testing can be explained as follows:

(1) H1: Knowledge has a positive and significant effect on Money Laundering Risk Judgment.

As shown in Table 2, the p-value obtained is $0.000 < 0.05$ with a significance level of 5%. The original sample value (estimate) is 0.511, indicating that knowledge has a 51% positive effect on money laundering risk judgment. This result demonstrates that higher levels of AML-related knowledge enhance bank officers' ability to assess and evaluate money laundering risks accurately. Therefore, H1 is **accepted**.

(2) H2: Management Support has a positive and significant effect on Money Laundering Risk Judgment.

Based on Table 2, the p-value obtained is $0.019 < 0.05$, which indicates statistical significance at the 5% level. The original sample value is 0.329, suggesting a 33% positive influence of management support on money laundering risk judgment. This finding implies that strong leadership commitment, clear internal policies, and supervisory support improve the quality of professional judgment exercised by bank officers. Accordingly, H2 is **accepted**.

(3) H3: Regulation has a significant effect on Money Laundering Risk Judgment.

As shown in Table 2, the p-value for the regulation variable is $0.046 < 0.05$, indicating a statistically significant effect. The original sample value is -0.219, which indicates a negative relationship between regulation and money laundering risk judgment. This result suggests that while regulations play an important role in guiding AML practices, excessive regulatory pressure may constrain professional discretion in risk assessment. Therefore, H3 is **accepted**, indicating that regulation significantly influences money laundering risk judgment, albeit in a negative direction.

4.3. Discussion

4.3.1. Knowledge and Money Laundering Risk Judgment

The findings of this study indicate that knowledge has a positive and significant effect on money laundering risk judgment, as shown by a path coefficient of 0.511, a t-statistic of 3.530, and a p-value of 0.000. This result demonstrates that knowledge is the most influential factor in shaping bank officers' ability to assess money laundering risks accurately.

This finding is consistent with the study by Huda Jamil et al. (2023), who emphasize that AML-related knowledge, including understanding of money laundering typologies, risk indicators, and regulatory requirements, enhances officers' analytical capacity in evaluating suspicious transactions. Similarly, Jamil et al. (2023) argue that informed compliance officers are better able to interpret customer behavior and transaction patterns, which directly improves the quality of professional judgment.

In practice, officers with strong AML knowledge are more capable of exercising sound discretion when dealing with complex or ambiguous transactions. This supports the argument that effective money laundering risk judgment does not rely solely on procedural compliance but also on cognitive competence developed through knowledge acquisition. Therefore, strengthening AML knowledge is essential to ensure consistent and accurate risk judgment within banking institutions.

4.3.2. Management Support and Money Laundering Risk Judgment

The results further reveal that management support has a positive and significant effect on money laundering risk judgment, with a path coefficient of 0.329, a t-statistic of 2.346, and a p-value of 0.019. This finding indicates that organizational commitment plays an important role in supporting effective professional judgment, although its influence is moderate compared to knowledge.

This result aligns with Hoffman et al. (2024), who find that strong management involvement, clear internal policies, and supervisory oversight positively influence AML compliance behavior among bank employees. Additionally, Karim et al. (2020) highlight that management commitment fosters a compliance-oriented culture, which supports employees in applying AML principles consistently when assessing money laundering risks.

From a practical perspective, management support provides direction, resources, and institutional backing that encourage officers to perform thorough risk evaluations without fear of organizational repercussions. When leadership actively supports AML implementation, officers are more likely to exercise careful and responsible judgment in identifying and reporting suspicious transactions. Thus, management support acts as a reinforcing mechanism that enhances the effectiveness of money laundering risk judgment.

4.3.3. Regulation and Money Laundering Risk Judgment

The third hypothesis demonstrates that regulation has a significant but negative effect on money laundering risk judgment, as indicated by a path coefficient of -0.219 , a t-statistic of 1.991, and a p-value of 0.046. This result suggests that while regulation is essential, excessive regulatory pressure may limit the flexibility of bank officers in exercising professional judgment.

This finding supports the argument proposed by Benzerrouk et al. (2023), who state that overly stringent regulatory supervision may constrain discretion and reduce adaptability in AML risk assessment. Moreover, Jamil et al. (2023) note that although regulatory enforcement provides structured guidance, it may also encourage a rule-based mindset rather than a risk-based analytical approach if not implemented carefully.

In the Indonesian context, regulations enforced through institutions such as PPATK and under Law No. 8 of 2010 require banks to strictly comply with reporting obligations. However, the negative relationship found in this study implies that rigid compliance requirements may lead officers to prioritize procedural fulfillment over deeper analytical evaluation. Therefore, regulation should be implemented in a balanced manner that supports professional judgment while maintaining compliance effectiveness.

V. CONCLUSION

5.1. Conclusions

This study examines the effects of knowledge, management support, and regulation on money laundering risk judgment (MLRJ) among bank officers in Pekanbaru City. Based on the results of the Structural Equation Modeling (SEM) analysis using the Partial Least Squares (PLS) approach, all proposed hypotheses were empirically supported. First, knowledge was found to have a positive and significant effect on money laundering risk judgment. This finding indicates that bank officers who possess adequate knowledge regarding money laundering typologies, risk indicators, and AML procedures are better equipped to assess and interpret suspicious transactions accurately. Strong AML-related knowledge enhances analytical ability and supports sound professional judgment when dealing with complex financial activities. Second, management support was shown to have a positive and significant influence on money laundering risk judgment. This result suggests that commitment from top management, clear internal policies, and supervisory support play an important role in strengthening officers' confidence and consistency in making AML-related decisions. Management support

creates an organizational environment that encourages compliance officers to exercise professional judgment responsibly when identifying potential money laundering risks. Third, regulation was found to have a significant but negative effect on money laundering risk judgment. This finding implies that while regulatory frameworks are essential in guiding AML implementation, excessive regulatory pressure may limit flexibility and reduce officers' discretion in conducting risk-based assessments. Rigid regulatory enforcement may encourage procedural compliance rather than analytical evaluation, thereby affecting the quality of risk judgment.

Overall, this study concludes that individual competence, particularly knowledge, is the most dominant factor influencing money laundering risk judgment, followed by organizational support. Meanwhile, regulation must be implemented in a balanced manner to ensure that compliance requirements do not hinder professional judgment. These findings highlight the importance of integrating knowledge development, supportive leadership, and adaptive regulatory implementation to strengthen the effectiveness of Anti-Money Laundering (AML) practices in the banking sector.

5.2. Limitations and Suggestions

Despite its contributions, this study has several limitations. First, the data were collected using a self-administered questionnaire, which may be subject to response bias. Respondents may overestimate or underestimate their actual knowledge, judgment ability, or perceptions of management support, potentially affecting the accuracy of the findings. Second, this study focuses only on knowledge, management support, and regulation as determinants of money laundering risk judgment. Other relevant factors, such as organizational culture, ethical climate, workload pressure, technological support, or individual cognitive characteristics, were not examined and may also influence risk judgment. Third, the study was conducted solely in Pekanbaru City, which may limit the generalizability of the findings to other regions with different banking structures, regulatory intensity, or institutional practices.

Future research is recommended to employ mixed methods, combining survey data with objective sources such as audit reports, system-generated transaction data, or suspicious transaction records to reduce subjectivity. Additionally, incorporating qualitative approaches such as interviews may provide deeper insights into how bank officers make money laundering risk judgments. Future studies should also expand the research area to include multiple regions and different types of financial institutions, as well as introduce additional variables to better explain the complexity of money laundering risk judgment in the banking sector.

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